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ABSTRACT

Seven speeches presented during a Maryland inservice program for educators in charge of school media programs deal with public relations and instructional technology. The first presentation emphasizes the need for public awareness of media programs and materials. This is followed by two related articles: a review of basics for an effective public relations program in library media services, and a discussion of how to develop children's interest in literature. Four presentations on instructional technology include two reviews of techniques for systematic instructional planning and development, a systems approach to media programing, and the application of systems theory to the improvement of education. (CH)

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ISSUES IN MEDIA MANAGEMENT 1976

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David R. Bender, Editor

Maryland State Department of Education
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ISSUES IN MEDIA MANAGEMENT

Publications

1973 — Supervision
Planning
Budgeting
Communication

1974 — Staffing
Censorship

1975 — Curriculum
Guidance and Counseling

1976 — Public Awareness
Instructional Technology

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Foreword

School library media programs grew rapidly during the 1960's and a major cause for this accelerated growth was the heightened public interest, concern, and support for quality educational opportunities for students across the country.

In today's educational setting, dynamic change in instruction and media has transformed the roles of the learner and the teacher. The learner has become an active participant in planning, designing, and implementing his/her own curriculum. The teacher's role has been modified from one of classroom lecturing to the greatly magnified role of planning, designing, organizing, and assisting with implementing instructional activities which are meeting learner needs.

This is not new or startling but little has been done to make this an everyday occurrence. Today's media specialist has an important part to play in achieving and creating a positive learning environment and experience.

The two topics selected for this year's programs were public relations and instructional technology. Frequently, the successes of media programs have not been publicized adequately and a positive program of public information must be implemented. Instructional technology is an organized approach to educational planning involving people, materials, equipment and facilities for accomplishing a set of pre-planned objectives. One must consider what the learner needs to know and determine what resources are available for transmitting the needed information to the learner. An assessment of the effect of such a process on the user's learning must be undertaken.

The information contained in this publication of Issues in Media Management encourages the reader to examine the roles of providing improved information services to our various communities by means of public awareness and instructional technology. The assistance of Rosa Presberry, Specialist, Special Programs and Cora Kenney, Coordinator of Library and Media Services, Anne Arundel County Public Schools, is appreciated. Without their continuing support and cooperation in planning and directing, the series could not continue.

David R. Bender
Assistant Director

PUBLIC AWARENESS

PRESENTATIONS BY:

Dr. Selma K. Richardson
Ms. Peggy Barber
Miss Marian Capozzi

December 10, 1975

Colony 7
Baltimore-Washington Parkway
Annapolis Junction, Maryland

7

PUBLIC AWARENESS

Dr. Selma E. Richardson

Associate Professor

Graduate School of Library Science

University of Illinois

Several terms creep repeatedly into the thoughts I want to share with you today: media awareness, public relations, and public awareness. It seems that media awareness and public relations cannot be separated. If one is going to make users and nonusers of a library aware of its media, one proceeds to conduct a public relations program. Perhaps public awareness is a quick way to say both terms at once. Public awareness suggests a possible twist in meaning. Is it the public that becomes aware of media or is it the librarian who becomes aware--especially conscious--of the public?

Let me state at the outset that what I want to emphasize is difficult to describe. The crucial element in a public relations program is the individual librarian--the librarian who believes it is important to meet and work with people and does so. In our business we cannot hire an agency to provide an advertising campaign, but, more importantly, our daily actions can speak louder to the public than anything an agency might devise. On a one-to-one basis the librarian needs to help individuals become assured that it is his intent to provide materials and services. Frequent encounters of a positive nature add up to an image of the librarian as a person who is aware of and responsive to the media needs of students and teachers. Thus, my talk should be a collective biography.

I doubt that I bring to you today anything that is startling new. I suspect that at some time or another you have read, heard, or seen most of what I shall suggest. At best I hope I might provide a pep talk that will encourage you to carry on the fine things you are doing. I shall try to describe to you some of the experiences I had in a large suburban high school in a way that relates to a school of any size at either the elementary or secondary level. The essence of a public relations and media awareness program remains the same in any school, only the scale and specifics vary. Every school has a faculty; the important thing is for the media specialist to work with that faculty whether he is the only one serving the faculty or one member of a media team. Every school has programs and channels of communication into which the media specialist can plug in. It is easy to say, for example, that I shall be available during the school open house if anyone wants to come to see me; it

takes some determination and work to use this occasion to get people into the library.

I shall begin by describing the Dana award, since this is apparently the link that brought us together today. Then I shall speak of some convictions that I think must be held by the media specialist who is going to make all of these one-to-one contacts, and present some suggestions for improving the physical setting of the media center so that the public can daily be made aware of media. I shall conclude with a few words about the role of supervisor.

The John Cotton Dana Library Public Relations Award seeks to promote the importance of public relations and to recognize libraries which have produced successful programs. This annual award is announced through the American Library Association and funded by the H.W. Wilson Company. A library interested in competing submits to a jury a scrapbook describing its public relations program. A winner is designated for each of several categories, including public libraries, school libraries, and college and university libraries; honorable mention is given to a number of entrants. The high school I served was declared winner among school libraries in 1973.

I would not suggest that a library's public relations goal should be to enter a contest. A promotional program should be an essential and eternal element of any library's plan to make its public aware of materials and services. A library might decide to assemble in a scrapbook the tangible products of this program; the scrapbook can be a vehicle for reflection and self-evaluation.

Many factors and circumstances composed the background from which our decision to enter the contest came. I shall not try to enumerate all of them, but I think I should mention some of the ideas and activities you might be able to use, adapt, or suggest to others.

For two years prior to entering the contest members of the media services staff were involved in a concerted thrust to make the entire school aware of the materials housed in the media center and the personnel available to assist students and teachers. This intent was reflected in the organization of media staff which assured that each department in the school was served by a librarian. Librarians were assigned to as many as four departments; each librarian had approximately 40 teachers with which to work. All departments were covered; physical education, industrial arts, music, business, math, and driver education were not neglected. The librarians became familiar with the curricula of the departments and the courses of study of indivudual teachers. They attended the meetings of the departments. Consequently, the librarians were able to respond to the requests of the departments and suggest additional mate-

rials and services. Many personal contacts were made by the librarians. Teachers were invited, on an individual basis, to come to the media center to see materials of special interest to them and to discuss their needs, aspirations, and frustrations. Promotional sheets were sent frequently to the various departments. The sheets usually addressed specific topics of significance to the departments and attempted to be enticing rather than exhaustive. Some messages were calls to assist in evaluating and selecting materials. The librarians responded to the reference requests of teachers, but went beyond this level to initiate new services. We were striving to inform teachers of the wealth of materials and human resources available from the media center so that teachers would find reasons for students to utilize media services.

At the same time we were helping teachers to find ways to use the media center with their students, measures were enacted which were geared specifically toward encouraging students to utilize the resources of the center. We wanted students to think of the media center as a pleasant and alive place to be. What better place to fight the malaise of some youth: boredom! Furniture was relocated to provide a variety of seatings in various areas of the media center. A special area for periodicals was allocated; the array of magazines was clearly visible. Audiovisual materials and equipment were pulled out of storage areas and were easily obtained at several locations. Phonograph records were placed in bins to invite browsing. Some audiovisual items were highlighted on desks and cabinets. Labels and signs were posted to enable students to navigate on their own. Posters and displays suggested things to do while in the media center. A small browsing section was disbanded in favor of making many areas of the media center places to browse. Book display stands were placed on each shelf that had inches to spare. Films, filmstrips, videotape, and audio programs were available to individuals and groups throughout the day; some special showings were scheduled. The media center was rearranged to provide a station for each department in the school. For every class a student was taking, there was a place to go for materials and a person at that location from whom he could seek assistance.

I have great admiration for the members of my staff who exuded the conviction that the media center could be a stimulating place to be. They countered reluctance and ennui with positive suggestions of things to do; they manifested a patience that outlasted the tests to which they were subjected. They attempted to create a learning environment despite the plague of study halls and attendance requirements which oftentimes thwarted their efforts.

The Library Club was rejuvenated by a librarian, an aide, and some students. The students changed the name to Media Club. Membership was open to any student who expressed an interest in

joining. I mention this because frequently a library club is made up of students who work in the library; membership is automatic and provides a social bonus for their labors. We found that there were students who were interested in this club who did not have time or inclination to work in the media center. On the other hand, there were students who worked in the media center who did not have any desire or need to extend their commitment to a club. As a result, the Media Club had a small, but active membership. The Club decided to help promote the positive image of the media center. I would encourage schools to broaden the base of membership in such a club in order that these "nonworking" spokesmen and proponents might be included. Our group could be more readily characterized as Friends of the Library than as a staff social organization.

The preparation of the scrapbook for the Dana contest certainly marked a high point in the activities of the Media Club, but before describing that undertaking I think I should mention a few of the projects of the Media Club which have public awareness implications.

In the fall of the year there was an evening, school-wide, open house for parents. On such an occasion parents usually want most of all to see the teachers of their youngsters. The media center might be overlooked. The Media Club decided to take some measures to drag parents into the media center. Flyers were prepared reminding parents to visit the media center and suggesting some of the things they could see and do there. Some members of the club were positioned at entrances to the building to distribute these sheets; other members were stationed in the media center where they told parents about materials and services. The presence and enthusiasm of the members of the Media Club added a touch of realism to an open house which often displays facilities and teachers but lacks the important ingredient of students. The assertiveness of the students, however, was not limited to what I have described. They prepared sandwich boards which they donned to roam through crowded areas of the building to advertise the media center.

On a spring Saturday morning the high school conducted an orientation program for the students who would be entering the school in the fall and their parents. The event proved to be an exhilarating one because eighth graders were eagerly and apprehensively looking forward to high school and their parents did not hesitate to share their enthusiasm. It was decided that the media center would be open for this orientation; many materials were on display. Members of the Media Club were busily informing prospective freshmen of the many activities of the media center. Each student was given a colorful brochure which included suggestions of things to do on that Saturday and a floor plan of the media center.

The Media Club decided it needed a mascot. A school-wide contest was conducted to create the mascot. The winning entry was Butch, the dragon. The mascot was subsequently used to tell the story of the media program in the award-winning scrapbook. His body became a centerfold and his tail stretched and twisted throughout the scrapbook. Butch was chosen for the scrapbook because, in the words of the students, "He is unique and imaginative, yet he is realistic. In all these ways he is like our media center."

The Media Club was aware of some aspects of the public relations program that the media services staff was conducting. The Club recognized that the PR program did not make an impact on all students, teachers, administrators, parents, and members of the community. The members of the Club were alerted to the John Cotton Dana contest and decided to take it on as another means to proclaim further the programs of our media center.

The theme for the scrapbook was formulated after much discussion and debate. The students decided that the statement which most adequately encapsulated our program was "Public Relations is People Relating to People." The scrapbook was divided into three sections: PR with students, PR with faculty, and PR with visitors. Tucked into each section were some of the bulletins and brochures that had been prepared by the media services staff during the previous year. The students decided against using lengthy, narrative descriptions of the public relations program and set out to portray the program visually. They worked their way from the first set of photographs, which they termed "disasters," to the montage arrangement you see in the scrapbook. The public relations tale ended in a red ribbon at the tip of the dragon's tail. Some members of the club objected to the finality that this page suggested, and, therefore, a page was added with the caption, "but the PR work goes on...." This page, also, is filled with pictures of people.

One of the students prepared an account of the techniques used to produce the scrapbook and a description of how the students arrived at the final product. You are most welcomed to read this later.

When it was learned that we had been designated a winner, a pamphlet was made to announce this. This brochure contains the entire script of the scrapbook, but not the photographs or promotional materials. Butch, the centerfold dragon, found his way into the brochure.

Occasionally it is appropriate to provide for the media center's public, a special event to spotlight materials and services. A happening of this type is no substitute for a steady, ongoing public relations program, but can be an affair which lingers in the minds of patrons to remind them of the media center. I would like to describe an event planned to

raise the consciousness of the school faculty. This program consumed the major portion of an in-service day scheduled at the end of the first semester. We had expressed our willingness to be responsible for an institute day over a year prior to the time that our proposition was accepted. Teachers, who never seemed to have enough time to explore our many resources, would have a morning allotted for this purpose. We were determined to plan an informal, pleasant, and stimulating session for the faculty. Our wares would be displayed in their abundance and teachers would be encouraged to probe areas of their choosing. Materials that were pertinent to courses being offered would be placed on tables much in the manner of a sumptuous feast. Other books and audiovisual programs would cater to the wide interests of human beings with a zest for living and a love for learning. We wanted teachers to go away with the thought that they would have to return because they were not able to pursue in one morning all the materials that were available and of interest to them. All forms of media were to be represented in the displays. We would try to let teachers know of the services we were ready and willing to offer.

The institute day began in an auditorium in another part of the building with a talk by a distinguished member of the community. Upon entering the auditorium each teacher was given this brochure which was meant to serve as an invitation to the media center, to be a teaser about some of the activities to follow, and to help the teacher decide upon some specific things he would like to do. Approximately 35 suggestions of things to do in the media center were listed, such as:

Glance through the latest issue of a magazine
Let a leading lady perform for you through a recording
Scan on microfilm the 1876 issues of the New York Times
Operate the portable videotape recorder
Flip out to electronic music
Consult a colleague
Develop a color transparency
Match wits with math wizards
Buss a media specialist
Snatch a bibliography

The next pages introduced the resource people from the community who were available in various locations in the media center to chat with teachers. The head librarian of the public library brought materials of particular interest to our teachers including information about the special collections and services of the public library. The president of the League of Women Voters was available to discuss issues facing the community. A sergeant from the police department brought displays about self-defense and drug identification. The pages at the end contain special messages for each department in the school.

The teachers descended upon the media center. Members of the media services staff were ready, alert, assertive, and wore their best smiles. Every place one turned something was happening. Films and sound-slide programs were being shown in some of the smaller rooms. A carpeted stairway was converted to a theatre. Tables were loaded with materials. Equipment was set up; a flick of a switch was all that was required of a teacher to start a program. Math games were out and awaiting players. (What a pleasure to see teachers from various departments around the same game table.) Some vertical file materials were displayed on top of the cabinets. Filmloops were in projectors ready to go; nearby were other loops to insert. The huge bulletin board about metropolitan events and the magazines were available as usual, but for some teachers this was the first time they had paused to absorb these displays. Careful planning regarding the locating of the materials and resource people assured that there were no congested areas and that people and activities were close enough to give a festive air to the occasion. People were mixing--talking with each other and media specialists. Everywhere stimuli abounded!

And there was food. The director of food services helped us to carry out the joviality of the occasion by providing apples and popcorn in huge bowls scattered throughout the media center and by placing coffee at several locations.

I am not sure that I have captured the day for you in this retelling. The staff had taken a risk, worked hard, and pulled off a successful institute. Near the exits evaluation forms and drop boxes had been provided. The "form" was a round face with two eyes; teachers were asked to fill in the mouth to indicate their opinion of the program. We were elated when we opened the boxes to find smile after smile and not one frown. Some teachers even added special compliments and remarks. Most importantly, teachers remembered the day and continued to comment about it.

There are a few brochures which were prepared that I would like to mention briefly because they were intended to make teachers and students aware of media services.

This brochure was distributed to students in the fall. Its purpose is to encourage students to use the materials of the media center for their classwork and leisure pursuits and to give them the names of the librarians ready and willing to assist them. This section gives information about the materials housed in the library, how to locate them, and how to borrow them. On the back are suggestions of things to do:

View filmstrips, 8mm or 16mm films, and slide programs
Listen to audio recordings - cassette, disc, and reel

Let the librarian help you with reference and study skills
Study classical writers, experimental films, and statistical tables
Find out about preparing for a job interview and browse through the career files
Tell the librarian about a book you read or a program you viewed and ask for some further suggestions
Browse among the displays, the mini-multimedia exhibits, the Chicago Guide bulletin board, current interest exhibits, and art work of students

For those of you who express an interest, I can explain more of the details that went into planning and preparing this brochure and others that I mention later.

This matchbook was distributed during National Library Week in 1973. The design on the cover was made by photocopying wrapping paper, plastic flowers, ribbons, and other odds and ends. Smiling faces were placed on the matches. The advertisement reads "Our business is to serve YOU; consultants in learning resources--a striking bunch!" This is not a complicated brochure; it is half of an 11 x 14 sheet. Two folds and two staples give it its shape.

The following year during National Library Week, the matchbook launched the theme "Media take you wherever you want to go." This theme led to a travel coupon book. Two types of coupons are to be found in this booklet: those for which the stub has been removed indicating that these are the types of trips which have been taken by students and teachers, and those coupons which suggest trips to be taken. An analysis of the brief statements would show that, somehow, each department in the school is mentioned, all the forms of media available in the center are included, and topics suggested range from A to Z. The "trips" taken represent specific services the media staff had performed. Content for this brochure and the one which grew out of it was obtained by asking all members of the media staff--professionals, aides, technicians--to jot down on 3 x 5 cards some of the ways they had assisted students and teachers recently. I think the larger booklet provides a picture of the variety of activities of the media center. The introductory paragraph ends with the statement, "The media center is a marketplace of ideas--those stored in our purchased resources and those of our human resources!"

The charge before us today is to explore some of the activities and techniques that might be employed to alert the public to media. How do we conduct media awareness programs? We can prepare descriptions and draft prescriptions of strategies to try, yet, they will all prove to be useless and in-

effectual unless the media specialist possesses some strong beliefs about the importance of media and personal relations. How often have we heard that one of the first things to do is set up a coffee pot? It is as if this were an Aladdin's lamp that would perform miracles if massaged. Envision the drones who get a coffee pot, plug it in, await a rash of requests, and then, complain that nothing happened.

The success of a media awareness program is dependent upon a media specialist who possesses some basic personal and professional convictions. The media specialist must exude the joie de vivre and the joy of learning.

The media specialist must in his own life find satisfaction in exploring his world and other worlds. He must be willing to struggle with the frustrations that so often precede jubilation. He must feel compelled to help others experience this joy of living and of learning. (This is the person who tackles questions with a person, not for him. Oh for the image of librarian as learner!)

Secondly, the media specialist must believe, really believe, that media--books, films, audio recordings, whatever--are means to probe our universe and to provide vicarious experiences. Media can be vehicles to transport us to antiquity and the future; media can be our communication links to the thoughts of the living and those who have gone before; media can assist us in seeking personal resolutions to eternal quandries and in finding solutions to our immediate questions.

Thirdly, the media specialist must feel comfortable about sharing with other people the first two convictions. The media specialist must be able to express spontaneously the joy of learning and the worth of media. In today's jargon, he must be assertive. That word will be acceptable in this case if it suggests a stance which lies between apologizing for convictions and proselytizing. The media specialist's demeanor, actions, and responses must suggest his desire (1) to help more people derive benefits from the utilization of media in learning, (2) to find ways to provide more and better services to bring together people and media, and (3) to play a significant role in the mission of the school: to help students learn.

The person who thinks he can bypass these premises or convictions in conducting a media awareness program will look upon minor defeats with moaning, whining, and lamenting. The person who holds these convictions will possess the resiliency to overcome small setbacks and move forward.

The media specialist, fortified with these convictions, needs to make contacts with the people in the school. The most fruitful contacts will undoubtedly be the one-to-one encounters through which the student or teacher thinks he has received

some assistance or gained some benefits. The satisfied customer returns, and frequently sends his friends.

A recent issue of School Media Quarterly contains an abstract of a research study by Harlan R. Johnson which attempts to determine what has been done in selected secondary schools to stimulate and encourage faculty to use the school library.[1] (I am isolating and taking out of context a few of his findings in order to bring out some points I think are important for our purposes.) The researcher found that the primary reason teachers did not use the library was that they saw no particular need for it. It seems to me we cannot wait for teachers to find reasons to use the materials and services of the media center. We need to identify the reasons we are indispensable. For each teacher we need to find personal, even unique, ways for the resources of the media center to be of some usefulness. I suspect another finding of Johnson's study touches upon a source of the problem. Only 20 percent of the librarians thought membership on faculty committees was a significant factor in teacher use of the library. Do we lack the ability to perceive that we do have a role to play in teaching and learning? I have on occasion asked librarians what was discussed at these meetings for which we seemingly have no input. I stand baffled as they rattle off items about which we really do have contributions to make.

According to Johnson's study the practice that had the greatest influence on teacher use of the library was the informal conversation with the librarian. Nearly 84 percent of the teachers cited this. On the other hand, 48 percent of the librarians suggested teacher use of the library could most likely be increased by the librarian contacting the teacher individually. So it seems that almost half of the librarians see this as a useful strategy while over four-fifths of the teachers do. I think the teachers might be trying to tell us something. It behooves us to try to make the individual contacts if they are regarded as significant by so many teachers.

Let's shift our attention now to some ways to make the media center as attractive and inviting as possible, to increase the visibility of the media available, and to make materials and equipment easily accessible. How might one create an awareness of media during a typical day in the media center? Our provisions in this regard often speak louder than special demonstrations and brochures. It is difficult to view the media center, with which we are very familiar, through the eyes of our public, but one must try to see the materials, equipment, and facilities as the infrequent visitor might.

Check to see that the arrangement of the furnishings and the locations of the materials and equipment allow the public to

be fully aware of the resources available. Can the students and teachers do the things that are most important? Would a few minor changes improve the situation? Is a major upheaval necessary? Invite a "stranger"--someone who is unfamiliar with your media center and who is not a media specialist--to go through your facilities after hours, and, without your guidance, draw conclusions about what he thinks your resources are and what people can do in your media center. Will he suspect that the media center is an exciting place to learn? Will he be aware of the existence of a variety of media about a diversity of subjects?

Display your wares constantly and continually in every available space. Neither be immaculate nor messy. If you prepare displays promoting your materials in special areas or glass-enclosed showcases, select themes or topics for which you have an abundance of media so that materials can be borrowed when requested, not when the displays are dismantled. Turn as many level surfaces as possible into display areas. Even the few inches at the end of a shelf can hold a book on a stand which will make the cover visible rather than just the spine. Place audiovisual materials on display; feature various materials. I am aware of the vulnerability of cassettes, but I think we are sometimes so busy fortifying ourselves against the robbers that we lose sight of our goal to stimulate the curiosity of youth.

Check your signs and labels. Do they speak positively for you? Is it easy for a person to move around your media center with guidance from signs? Are there suggestions of things to do? Are there signs which will annoy or turn off your public and make it difficult to establish the credibility of your media awareness and public relations programs? How many signs have "nots" and "only" in them diminishing the effectiveness of other invitations?

There are a few ways the supervisor can encourage media specialists to undertake media awareness programs. I am speaking now of the supervisor who does not have direct contact with the media center's public.

The supervisor can provide the impetus for public relations and media awareness programs (1) by stressing their importance and (2) by facilitating some of the organizational and technical aspects. The important person-to-person relationships with the public must remain the domain of the person working in the local media center. The supervisor can let it be known that promoting the materials and services of the media center is of high priority to him. He can state this publicly; the viewpoint can be reflected both precisely and subtlely in written communications. (Note that I am not suggesting that the supervisor is to say he thinks it important for the media specialist to promote the media center, but that the supervisor as an individual possesses

this belief. He cannot coerce, but he has the right to express convictions.) The supervisor can urge along media awareness programs by encouraging media specialists to assume responsibility for these programs, by helping media specialists to identify ways to tackle the programs, and by complimenting and praising their efforts.

Assist the media specialist who expresses even a speck of interest by drafting a realistic, but flexible plan to enable the media specialist to measure or check off his progress. Within a reasonable time, slowly and surely, contacts should be made with everyone in the school. Help the media specialist to identify things he is currently doing which could be given up without much loss in favor of time for public relations. Isolate a workable area in which to begin or an area of thrust. Assist the media specialist to see his media center through the eyes of his public. Smooth the way for turning adverse criticisms into positive suggestions. Do not minimize the work involved in conducting a media awareness program. Assist those interested in providing a special demonstration for the school; help with conceiving the plans and the nitty-gritty. Invite other media specialists to attend the demonstration so that they might benefit from the successes and mistakes of colleagues.

Make a special effort to praise individuals who have launched public relations and media awareness programs--personally! Telephoning is an acceptable substitute only when geographic distance is a factor. Follow up this praise with words of appreciation in writing. Such praise is often the force which spurs the person on to the next endeavor. Try to spread the news of successful events and efforts. This underlines the fact that the supervisor thinks these are important. Furthermore, others might get ideas or take off from those things which have been tried.

There are many activities school media personnel might try to increase the media awareness of students and teachers. I have mentioned only a few of them. I have not touched upon surveys that can be used to assess and suggest materials and services. Narrative and informative reports can be made to the administration. Suggestions can be fed to the school newspaper for articles about things students can do in the media center rather than acquisition lists. Mini-courses can be developed around student interests and in cooperation with faculty members; these usually require materials other than a standard textbook. How long a list could we make?

Let me conclude by reiterating that it is important for the media specialist to make as many individual contacts with the people of the school as he possibly can. Gather friends and advocates. Enlist the support of students to promote the media center. Someday tally the number of personal contacts made. If you are pleasantly surprised with the results, carry on!

If you are disappointed, consider how you might have relived the day in order to make more personal contacts. Be visible, available, approachable, responsive, and assertive.

I have shared with you some of the positive things that happened in my experience. I do not wish to end letting you think that life was always rosy. Taking on the media awareness program I have described made demands beyond an 8:00 A.M. to 4:00 P.M. day. There were many anxious hours and many reversals. All was not glorious, but there were a few rewards along the way. The best ones were usually very intimate and personal, sometimes nothing more than the twinkle in the eye of a student or teacher.

I hope you will continue your public relations and media awareness programs with renewed vigor. I promise you a rose garden, with all its thorns.

FOOTNOTES

[1]Harlan R. Johnson. Teacher Utilization of Libraries in the Secondary Schools of Tucson District No. 1, an abstract. School Media Quarterly, Volume 4, No. 1, Fall, 1975, pp. 60-61.

PR BASICS

Miss Peggy Barber

Director, Public Information Office

American Library Association

The truth is every library has, by its nature, public relations--good, bad, or indifferent. The difference between good, bad, or indifferent public relations depends upon the ability and the desire of the library staff to know its public and its information needs, to provide good services in terms of these needs, and to sell these services.

The basic ingredients for an active and effective public relations program are common sense and self-confidence. You don't really need a creative Madison Avenue expert to promote your library. In fact, you can do it better because you know your community better and the services your library can provide it.

There are four steps in developing an effective communications program:

1. Research
2. Planning
3. Action - Communication (publicity)
4. Evaluation

This pattern can be applied equally to any organization, large or small, even to all types of libraries.

The questions that follow can be used as a simple, informal checklist as you create just the right program to take library services out of the stacks and into the streets.

I. Research involves an assessment of where you stand within the library or media center and how effectively you are serving your public.

A. Put your house in order

1. Is service the number one priority of your staff?

2. Is everyone on your staff well-informed? Does your principal know what's going on? Do you know what's going on?

3. Is everyone on your staff encouraged to contribute ideas; are they free to complain?

4. Does your library welcome visitors; is it a good place to be?

5. Is your library staff capable of delivering all that it promises?

B. Get out of the building

1. What would happen if you suddenly found the walls of the library missing? What would you do with all the books, records, films, etc? Could you serve the community effectively without a building?

2. What's the demographic makeup of your community? What are the most important groups and organizations? Who are the opinion leaders?

3. What is your specific "public"? In a school media center your public might include your staff, the students, faculty, administration, and the general public. Do you know the information needs of your principal and do you provide appropriate materials?

4. What are the community's interests and problems <u>today</u>? Do the activities of the library respond to these demands?

5. What kind of image does the library maintain in the community or school? Is it taken for granted? - Is it abused?

II. <u>Planning</u> should integrate your communications program into your institution's overall plan and budget. Public relations should not be considered a separate activity or just a frill. It is as vital a part of any administrative plan as staffing or program development.

A. Is your communications plan written?

B. Does it include specific and realistic goals?

C. Are your communications goals consistent with total library goals?

D. Have you built evaluation into your plan so you can judge its effectiveness? Have you set up a reporting schedule? PR may be only a part-time job, but it should be organized to include a program of regular activities and a reporting schedule for your staff and your administration.

III. Action - Communication. Publicity is one tool of a communications effort and includes use of all local media with features, news, public service messages, promotions, etc. A total PR effort may include planning special programs, speeches to community groups, setting up special research for the principal's office, services for the news media, etc.

A. What efforts do you make to communicate news of the library and its services?

B. Are you aware that you have the ability and responsibility to create news?

C. Have you met the local newspaper editor and convinced him of the value of library services? - Or, if you are in school, do you know the staff responsible for the school or school systems publicity? Do you provide them with information on your activities?

D. Is the library message positioned and expressed in the language, goals, and interest of the intended audience, rather than those of the message sender?

E. Do you have access to a printing press and graphic artist, or to the services that can supply you with posters and other sales materials?

F. Do you know the "right" people to call if you want to spread a story quickly?

G. Do you regularly participate (and speak up) in important community organizations?

H. Little things may mean a lot, but have you done anything really big lately and let your public know about it?

IV. Evaluation simply completes the cycle by a return to research and a constant measurement of the library's effectiveness in serving its public and in assuring its progress toward specific goals.

The American Library Association has been developing a new communications program following the research, planning, action, and evaluation formula. We hired a public relations firm to assist us with research and development of a plan. And the ALA's Public Information Office is expanding its activities into a full, year-round visibility program for libraries. The new growth began when the ALA took on the National Library Week program in 1975 from the now defunct National Book Committee. As

the oldest and only national PR effort for libraries, NLW has had many critics within libraryland, but can still draw tremendous media response--from tiny hometown weeklies to Gene Shalit's supportive remarks on NBC's Today show. With the major program emphasis on NLW, ALA markets posters, bookmarks, and publicity aids to libraries. The income from these materials helps to support the year-round campaign of feature placements for magazines, wire services, major dailies, and more. The ALA is also planning a venture into film for public service television spots in the near future. The support of libraries throughout the country has made a tremendous beginning possible. National Library Week will be April 4-10, 1976. The theme is "Information Power." Order forms for '76 materials are scheduled to be in the mail in December 1975.

DRUMMING UP CHILDREN'S INTEREST IN LITERATURE

Miss Marian R. Capozzi

Supervisor, Library Services

Baltimore County Board of Education

Rosa Presberry asked me to come here today to talk to you about a project which has been implemented in Baltimore County schools. The project supports reading and literature in the elementary schools and involves the use of Title II funds in the amount of $160,400.00 for the purchase of 16mm films based upon children's books. Since it was the Division of Library Development and Services that aided us in securing these funds, and since turn-about-is-fair-play, it is now my turn to tell you about this project which has captured the imagination of our librarians, media specialists, and teachers. My remarks will be geared to supporting the underlying theme of this workshop, public awareness and media awareness.

To my way of thinking, it is extremely difficult to draw a fine line between publicity, public information, and public relations. To me, they are all interrelated. The important thing to do is to consider all three in any project which is undertaken, particularly one which involves the expending of public funds.

Public funds enabled Baltimore County to purchase quality films in quantity, but as I am fond of saying, "It is not what you have that counts...it is what you do with what you have." It would have been a comparatively simple task to select and add films to our meager collection of literature films, properly marking them as federal purchases and listing them on a computer print-out, on mimeographed sheets of paper, or in a mimeographed handbook. I wasn't willing to settle for this because another favorite saying of mine is an old riddle, "If a tree falls in the forest and no one hears it fall, did it make a sound at all?" Think about it.

PHASE I

Being a Weston Woods' fan and having seen a recent catalog featuring one of the Wild Things from WHERE THE WILD THINGS ARE by Maurice Sendak (Harper, 1963), I took pen in hand and wrote to Morton Schindel, President of Weston Woods Studio. The letter was a real grabber. Listen to the first paragraph...

"Recently the Board of Education of Baltimore County received approval of a federal project which relates motion pictures to children's literature. Although we have not as yet received full funding for this $160,000.00 project, we have been authorized to encumber $80,000.00 immediately."

Now, if you were an astute business man or woman, what would you have considered doing at this point? This was Morton Schindel's response: Our letter was written on a Friday, received on a Saturday, and a call placed by Weston Woods Studio to Baltimore County on the following Monday, and not too long thereafter, Mrs. Schindel and an assistant came to visit us to learn more about the project and to see if they could be of assistance.

We decided the project could be mutually beneficial, discussed the basic format and design, and decided to print 5,000 copies of the brochure (which would include film listings from companies other than Weston Woods) for distribution to all elementary and special school teachers in Baltimore County plus bookmarkers (a possibility dependent upon printing overruns), and set our target date for September 3, 1975. All expenses for the brochure and bookmarkers would be assumed by Weston Woods Studio. This was accomplished in less than two hours.

The following week, I received a rough dummy of the cover and, almost immediately, a rough copy of the body of the publication. All editing was done within the next 48 hours via the telephone...and all telephone calls, which were fairly lengthy, were also paid for by Weston Woods Studio. A few days later, I was invited to Weston, Connecticut to approve the final cover and copy, to submit my introduction, and to read Mr. Schindel's message which was to appear on the inside of the back cover. I asked him to write a few words of his own and that is what he titled his message, "Something of My Own." Incidentally, for public relation reasons, I deliberately mentioned various offices in the introduction, the Office of Reading Services, the Office of Elementary Education, the Office of Instructional Materials and Services, and a few words about the reading program, mentioning national programs such as THE RIGHT TO READ and READING IS FUNDAMENTAL. I even considered the superintendent's signature but then decided that he wouldn't really talk about 'porridge pots.' The end result was his name on the page along with my name and the name of the project director, Mr. Rodney Gobrecht.

To reassure our public that we had not spent local or federal funds for printing, we requested a statement on the back cover to note courtesy printing by Weston Woods Studio.

All copy was approved; I was told not to worry about the deadline and to continue planning. It was now August the 14th!

PHASE II

The next phase of planning involved designing a meeting calculated to inspire our librarians to implement the project. This is not an easy task when you are a staff of one and all school librarians are on summer vacation. Thank goodness for volunteers, and I use the word loosely!

Morton Schindel had agreed to be our speaker, admittedly quite a drawing card, but when you take a librarian away from a school during the first day or two of a new school year, time when they plan to get ready for the opening day of school, you need more than a noted speaker.

As luck would have it, Mr. Schindel could not attend our Professional Study Day Meeting but he did send his assistant, Ms. Wickenhagen, a delightful substitute, and his houseguest, Mr. Atkinson, the Superintendent of Australian Schools. Together they hand-carried three hundred copies of the finished brochure to Baltimore County to be distributed at the meeting; the balance was sent to our warehouse for distribution. The task of writing, designing, and printing had been accomplished in less than three weeks!

The meeting was held in a not-too-glamorous multi-purpose room in an elementary school from 9 a.m. to noon. We used a few days before the meeting to decorate the room around the theme of "SEE, LISTEN, READ, DO" and displayed a variety of interesting materials, equipment (including new slide-filmstrip viewers which each librarian would receive that week), photograph albums which included pictures of librarians (many of which they had never seen); and projects from the past year. A local author, one of our librarians, Joan [illegible]s who wrote WHAT IS IT? (Doubleday, 1974) was asked to display photographs and meet with her colleagues; a refreshment table was arranged (almost two weeks in advance) which featured the Cat in the Hat; the podium featured an oversized Drummer Hoff; drums were used for name tags; packets were packed to contain all relevant materials to eliminate note-taking during the program; and new color video-taping equipment (also purchased with federal funds) was set up and in place to videotape librarians and guests as they entered the room. The stage was set. Call it incidental or accidental learning, it was going to take place in an environment conducive to learning!

The program consisted of the following: An introduction to the project by Rodney Gobrecht; a distribution of the brochures which arrived exactly at 9 a.m.; a sneak preview of ZLATEH THE GOAT plus a film of Weston Woods behind-the-scene bloopers and problems connected with filming ZLATEH THE GOAT

which kept the audience laughing; informal remarks by Ms. Wickenhagen; an introduction by Dr. Gifford of the new color videotaping equipment; some films made by children which were entered in the Maryland Film Festival to show that you, too, can make films; a brief talk about the new television reading series by Sue Garrison; two brief reports by librarians who had attended State level workshops; some brief announcements; a three-minute film which showed the rapidly-paced actions of a librarian returning to school on the first day; and audience participation in establishing priorities for that first day of school. This last activity was a natural lead-in for me to explain my priorities for the following day which involved Phase III of the project.

PHASE III

Phase III involved the writing of umpteen letters. After all, if you are going to accept monies from people, the least you can do is thank them and tell them how the monies were spent. Not only is it polite and common sense, it is also good public relations.

The first letters were sent to Maryland Congressmen and Senators. This was given priority since Congress was preparing to vote for or against funds for education. Other letters were sent to David Bender and Nettie Taylor who had assisted us in writing the project; Dr. Sensenbaugh, so that he could see the result of his staff's effort; Charles Robinson, the Director of the Baltimore County Public Library who was going to benefit from this project (films were being made available to the public libraries so that all children in Baltimore County could benefit from this grant); officials at HEW and the United States Office of Education; persons connected with the RIGHT TO READ program and the READING IS FUNDAMENTAL program; and last but not least, to friends throughout the country who for one reason or another might be interested in such a project.

And, of course, letters had to be written to all of the people who participated in the meeting or had helped to prepare for the meeting, including the principal who allowed us to have the meeting in his school. In addition, letters and copies of letters had to be sent to Mr. Schindel, and more letters written to Ms. Wickenhagen, Titus Teeuwissen, the artist, and to Bev Lyn Kaukas who did so much of the manuscript typing and editing.

Letter-writing is an extremely time-consuming task but a very necessary part of a project. I discovered that time put into the first letter is worth every minute because the basics of that first letter can be used over and over again.

PHASE IV

The fourth phase of this project involved compiling a list

of film use suggestions. And this was where we got teacher input.

At the kick-off meeting, librarians were asked to get ideas from teachers and to share them at area meetings which are held bi-monthly. Within a three-week period of time, these ideas were forwarded to me for compilation and than returned to the schools for implementation. Implementation was calculated to coincide with the distribution of the brochures by the librarians to the teachers. Prior to distribution, each librarian was to confer with the principal and assistant principal concerning the accomplishment of the project on a local school level.

PHASE V

Phase V involved more writing, the writing of a chapter for a book to be published in 1976 by the American Library Association entitled, START EARLY FOR AN EARLY START. From the original listing of films, I selected those films pertinent to early childhood and collaborated on an article with Mrs. Catherine Brunner, Supervisor of Early Childhood Education for Baltimore County. The article will be followed by a list of suggestions for film use with young children and a very lengthy film bibliography which includes vendor and producer information plus book information.

Many people have asked me why this information was not included in the brochure. Our reason for not including buying information was that teachers were using this brochure for local ordering and we thought they would not wish to be bothered with extraneous information.

PHASE VI

Phase VI is still in progress and involves local school librarians generating publicity within the school and within the community. To complement their efforts, I am working on generating publicity in house organs and newspapers, giving talks, and writing articles. All results are being compiled and we are going to make application for a John Cotton Dana Award, an award given by the H.W. Wilson Company for promotion and publicity.

CONCLUDING REMARKS

Our literature-film related project has been in operation since October 1st, a little more than two months, and Rod Gobrecht said that never has he seen films 'take-off' so fast and furiously! Whereas there is usually a three to four-year time lag for a film to prove popular, these seem to have taken-off all-at-once.

Our purchase plan also ran in phases: In Phase I, we purchased 735 prints (386 from Weston Woods Studio) for $121,000.00;

in Phase II, 77 prints were purchased for $14,000.00; and in Phase III, 98 prints were purchased for $21,000.00. We now own 910 prints of 126 titles and have approximately a $4,000.00 balance.

Additional prints were purchased in direct ratio to the number of conflicts experienced in booking. The minimum number of prints owned is 5 and the maximum 18. The most popular films are THE DONUTS, HAILSTONES AND HALIBUT BONES, BEN AND ME, EVAN'S CORNER, and DRUMMER HOFF.

In 1974 we circulated 235 films per day from our entire film collection. In 1975, since October, that figure has risen to more than 400. That works out to an increase of 165 films per day or 825 per week. Counting returns, this means that our film library staff, which has not been increased, is handling an additional 1,650 films each week. Our 115 elementary and special schools are borrowing approximately 7-8 films based upon literature per week.

We figure this to be a pretty good return on our time and our money...and what is more important, by using these films we think children WILL WANT TO READ...which is what we started out to do in the first place!

INSTRUCTIONAL TECHNOLOGY

PRESENTATIONS BY:

Dr. Gregory Trzebiatowski
Mrs. Janice Richardson
Mrs. Jean N. Gilliam
Dr. Richard Neville

January 14, 1976

Howard Johnson's
Dorsey Road
Hanover, Maryland

TECHNIQUES FOR SYSTEMATIC INSTRUCTIONAL PLANNING AND DEVELOPMENT

Dr. Gregory L. Trzebiatowski

Assistant Dean for Medical and Graduate Education

Ohio State University

Introduction

I probably ought to establish a little credibility. I have one of the best pedigrees as an audiovisual person that I know. I began at the University of Wisconsin with Walt Wittich. (Remember the audiovisual textbook by Wittich and Schuller?) I worked as a graduate student with Walt Wittich, got an NEA fellowship to Michigan State University in Educational Media and Communication, then continued my work at Michigan State University with Charlie Schuller. From there I went to the University of Southern California and worked with Jim Finn for two years where I met Don Perrin and Bob Heinich, the current editor of AVCR. We were colleagues from 1965 to 1967. Next, I went to Ohio State University College of Education as an assistant professor and joined Sid Eboch, Edgar Dale, Keith Tyler, and Bob Wagner. I have had regular communications with Edgar Dale.

I also taught high school for three years (both junior high and senior high school and, of all things, industrial arts). I have just changed shop coats and now wear a white coat when I go into the clinical areas instead of the shop coats of the brown and green variety that industrial arts teachers wear. In 1968 and 1969, I represented Ohio State at the Ohio Consortium where we worked on the Elementary Teacher Education Project. If you recall, the Office of Education provided nine institutions with funds to develop entirely new models for elementary teacher education. We wrote objectives and developed a pretty good model of elementary teacher education.

I then moved to the College of Medicine at Ohio State University. One of the main reasons for this move was to take advantage of an opportunity to do instructional development, rather than just to talk about it. I was beginning to feel like a charlatan talking to graduate students, and I was becoming entirely too theoretical. I am very practical as I came from an agricultural background. Coming from that kind of background, I really wanted to get the feel of instructional development, and the Medical School has provided me with an excellent environment in which to practice what I try to preach. I have three children so I have constant contact with elementary and secondary schools even though I am working on a little different level at the present time.

I have been very fortunate to be involved in some exciting educational development efforts that I would like to share with you this morning. We have, for example, in the first two years in the medical curriculum a complete independent study program. A medical student can come in an go through all the basic medical sciences completely at his own rate. One medical student completed the equivalent of two years of medical school in ten months. After completing a 20-month requirement of clinical clerkship experience, he graduated from medical school in 30 months--just two and a half years. While the rate of progress is independent, the content is constant. We make extensive use of learning resources which are available on a cafeteria style. The objectives for the entire curriculum are completely defined. Each module has a recommended list of learning resources. We include the names of faculty members in our list of learning resources. The student picks up his study module which contains written objectives and which tells him what he has to master in a particular body system (e.g., the cardiovascular system). He then selects his learning resources and works independently at any rate and time he wishes. If he is a meadowlark, he is in at six in the morning, works until two in the afternoon, then is off to play golf. These are the happiest students you have ever seen.

I am a strong believer in the media. We have a good Division of Research and Evaluation in Medical Education, and I can show data that conclusively indicate the positive effects of media and media support in an independent study program. Independent study is the way to keep people interested in learning since people have different learning styles and different learning rates As you and I differ, so do our individual learning abilities. There is some grouping but these groups are fluid and reform constantly as students go through the program. Our Independent Study Program has gained OSU an international reputation in medical education. We have visitors from all over the world, and we have now exported this program to Brazil where we now have, with the aid of the Pan American Health Organization, an Independent Study Program at the Federal University of Rio de Janeiro. So, independent study in medical education is rapidly becoming a reality. As a result of a survey that I recently conducted, the data show that 60 schools are actively involved in independent study programs.

Ohio State University is probably the biggest medical school using computers in education. Again, wanting to individualize students' learning, we are trying to produce a professional who operates independently. (I think all of us ought to be independent individuals.). We ought to learn to cut the cord as quickly as possible. This should be a gradual process, beginning at the time a child is born, so that he does not have the problem of adjusting to adulthood. But, if you are training an independent professional, he has got to learn by himself. You can't keep him in a dependent mode through his whole

education, then after 20 years turn him loose and say, "Keep yourself up-to-date". It will never happen. You have got to train him through a process wherein he learns independently.

To support independent learning in the clinical setting, we have 11 learning resource centers in the medical school. We have one that we call the Master Learning Resource Center in the Health Sciences Library. We have taken the media, videotapes, slides, tape presentations, textbooks, and journalistic articles to the clinical student. If a medical student is assigned patients in obstetrics and gynecology, he will likely watch a woman deliver a breech birth. He can't leave the delivery room, go to the library to look at a videotape on breech birth, and go over the anatomy and physiology and all the problems related to that kind of a situation. So, we have taken the learning resources to him. He walks across the hall, pulls the videocassette off the shelf, puts it in the projector, and views it. When the resident hollers, "Hey, here she comes," he shuts the machine off, goes across the hall, and watches the delivery. To give you an idea of the size of our instructional support system, we have 500 television monitors in the Medical Center.

Self-Instruction

Now, on to self-instruction which is the major topic of my talk today. Four years ago, four or five of the southern medical schools decided that it would be wise to form a consortium and share the learning resources that they had developed. Initially, they formed the Southern Deans' Consortium for the production and sharing of self-instructional materials. They have since changed their name to the Health Sciences Consortium. This organization has produced about 850 self-instructional packages to date and set up a training program to teach faculty members to produce self-instructional materials. These self-instructional materials are then shared among schools so that many of the packages that we have in our learning resource center were actually produced at the University of North Carolina's medical school and so on. You may also want to do something like this. I have set up a number of training programs for faculty members in the preparation of self-instructional materials as a part of our faculty development program. Our self-instructional materials are almost always developed as a part of a large curriculum development effort which has had outside funding. Our latest project is a grant for approximately $700,000 to develop a segment of our medical curriculum in primary care. We plan to send students out into the community, and I am going to send learning resources with them to support their experiences. Family practitioners and other general practitioners in the community are not trained teachers. They need support. They are good people to supervise a student's clinical patient care experience but, in order to get a sound educational program, they need good curriculum support and evaluation support.

Systems Theory as a Basis for Instructional Development

Even though I am responsible for the administration of medical curriculum, I spend much of my time working with faculty members on all aspects of education. One of these is educational development. According to Dave's definition, you have to use a systematic approach. Everybody has to have a system. You need a system. You ought to become familiar with the system's approach if you haven't already. It's a problem-solving methodology that has served me in great stead through the years since I was first introduced to it by John Barson at Michigan State University in the early 1960's.

Basically, what is meant by a system is you look at inputs and outputs and then look at what happens in the middle; i.e., what kind of processing is taking place. (Fig. 1) Feedback and feedback loops are also an important part of systems thinking. A system can be defined at any level. It could be a course or it could be a self-instructional package. The nice thing about a system is that it is applicable at any level from supra-national down to the level of the cell. Another nice thing about systems is that it can be used to communicate with physicians with whom I work. I can understand many of the things they are talking about without any background in medicine simply because I understand systems concepts. Physicians are constantly impressed, rather shocked, that I can draw some conclusions and ask astute questions about medical phenomena simply because I understand systems theory.

Systems operate at the cell level up to the national level on the same basic principles. Let me give you an example of a system that I was thoroughly familiar with as a child. I don't know if you have any of these left in Maryland (I doubt it), but I am referring to the one-room school. I went to a one-room school for eight years. In that one-room school, I had the same teacher for five years, and that teacher was also the superintendent, since she was in charge of the district and met with the Board of Education. She was also the principal, since she was in charge of a building, and the curriculum director, since she decided what would be taught. In addition, she was the music teacher, physical education teacher, art teacher, language teacher, social studies teacher, math teacher, science teacher, librarian, and the audiovisual director. She was also a business manager, reading specialist, and guidance counselor. She even swept the building at night. It was a tight system. You had no problem telling the custodian that you were going to have a Christmas program in the building and that it should be cleaned "extra special." Basically, what we have done with school systems is what we call "shred out." All these jobs have splintered out and have been split up. But, the one-room school was a complete system in and of itself and it functioned reasonably well. It had its limitations, obviously, but I think it is a fairly good example for the system.

BASIC ELEMEMTS OF A SYSTEM

(AFTER NADLER)

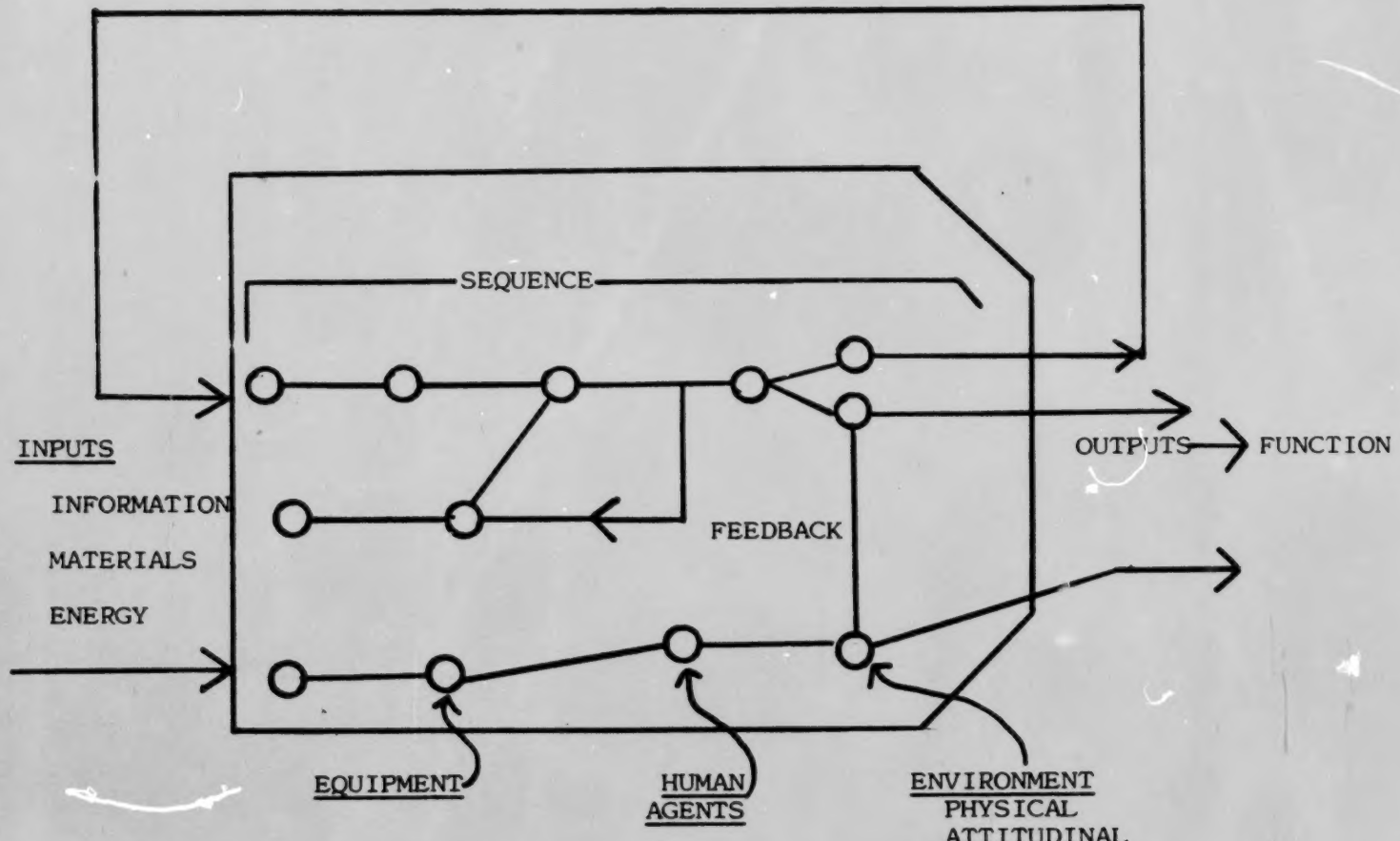


FIGURE 1

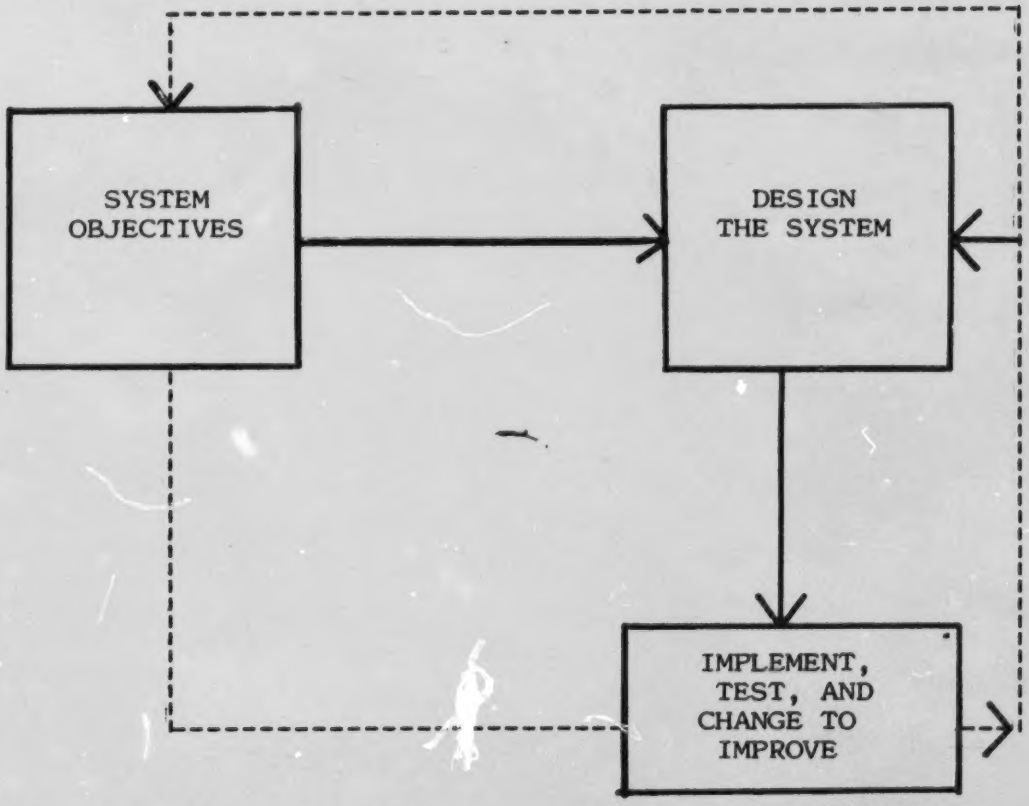
While I was at Michigan State University, we developed the following definition:

> An instructional system is a complex consisting of several or all of the following components: learner(s), instructor(s), materials, machine(s), and technician(s) given certain inputs and designed to carry out a prescribed set of operations. This set of operations is devised and ordered according to the most recent and pertinent evidence from research and expert opinion so that the probability of attaining the output, specified behavioral changes in the components, is maximal.

A simplier way to look at systems is to look at Banathy's model. (Figures 2 and 3)[1] You simply take the systems objectives, design a system, and then implement, test, and change accordingly. To break that down further, you formulate what your outcomes should be in the form of instructional objectives. You look at the learning tasks involved and design a system. You then implement it, test it, and try it out. You develop the necessary tests to find out where you are going and then make whatever change you need to improve the system. Then, of course, you provide feedback throughout all elements of it. I am absolutely convinced that you cannot make any changes in your system without starting with research and evaluation. I think one of the reasons that I have been successful working in the medical school with medical faculty is that I have taken a research and evaluation kind of perspective. The medical faculty are scientists and they will not accept anyone coming in and saying as an educator, "I think that is the way you ought to do it." What I do is say, "Here are the data. Here is the evidence. Here is where the students were when we started, and here is where they are now." As scientists, they cannot deny me the right to do an experiment that involves selecting a group of students and doing something different with them in the hopes of improving our educational system. They won't deny me that right because they are constantly doing it themselves. Then, as soon as the pilot program works, I can go back and show them the data. I don't have to argue over philosophy or whether or not media are any good. I simply show them the evidence. If it does not work, then we try something else and keep the main system flowing.

We are expanding the Independent Study Program because we have concrete evidence that ISP students perform better, are happier, and have a much more positive attitude toward their subject matter. One of the major problems is the medical students intensely dislike the basic medical sciences. For example, memorizing anatomy is one of the most boring things a medical student can do. This kind of an approach may not work as effectively with a classroom teacher but it works with faculty members that have a research orientation.

AN OVERVIEW OF STRUCTURE



----------FEEDBACK LINE

Figure 2

AN OVERALL STRUCTURE OF THE
DESIGN OF AN INSTRUCTIONAL SYSTEM

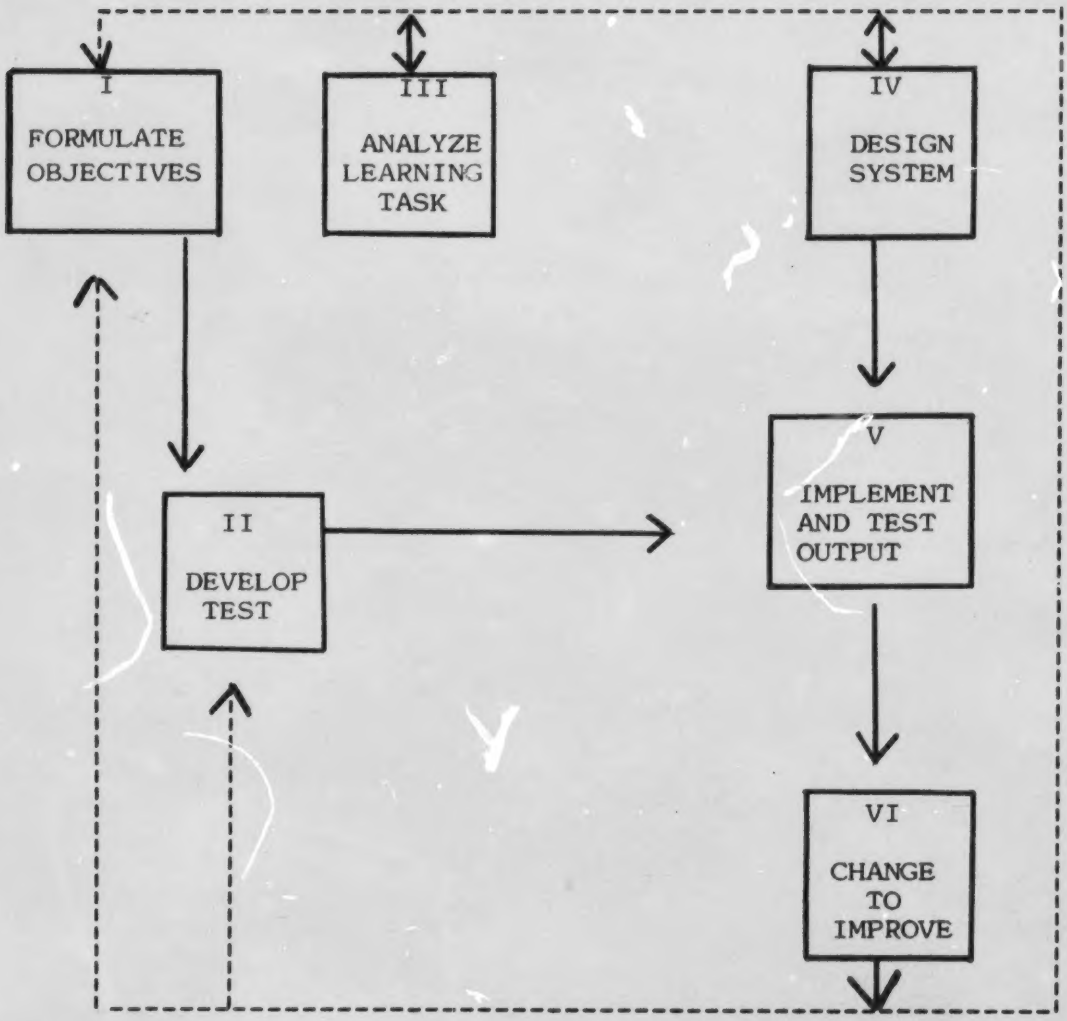


Figure 3

There is no one model for instructional systems design. (Figure 4)[2] Basically, all instructional systems are talking about the same thing.

Here is a more complex one (Figure 5)[3] - the systems definition and management stage. First, define the instructional problem by basing the problem on data. For example, 16 percent of the medical students who come into the Ohio State University College of Medicine are judged to be poor readers by the Nelson Denny Reading Test. How can this happen? What kinds of problems does it create for the faculty? Straight A students are primarily accustomed to verbal presentations in science classes. They are good at memorization but they cannot read. Many have a poor vocabulary. Unfortunately, the majority of these students has very little chance of being successful in medical school. In order to overcome their difficulties, we send them to the reading clinic. We have also started a remedial course in study skills wherein teachers show students how to take notes. They also take a course in medical vocabulary.

We assume that any student (regardless of color or background) has the capability to get through medical school. We can predict who is going to succeed and who isn't. But we are not infallible. We let the student try the regular system first and, if he begins to have difficulties, we pull him out and begin to give him some remedial work. We give him remedial reading, study skills, undergraduate science courses, or medical terminology. He has the opportunity to elevate himself to a level where he can compete with the rest of the medical students.

We must define our instructional problem. I have a graduate research assistant who has conducted studies in the area of disadvantaged medical students. She found that one of the reasons students have difficulty defining instructional problems is they do not know how to take tests; the white student is a master at taking tests. Faculty members indicate that these disadvantaged students know the material, but they simply do not know how to take the test. They are confused by the vocabulary and the grammar. Multiple-choice questions confuse them completely. My assistant is presently working on a self-instructional program which will be computerized and available for all medical students. In fact, it will be distributed nationally once we get it on the computer

Test-Taking Skills

I would estimate that a mere 50 points increase on a standard score of 500 would probably get 50 percent of our disadvantaged students over the mastery level. Going back to the model, we need to determine and select the supporting staff, determine the management system, and define the student population. Not all students who do poorly in medical school do so

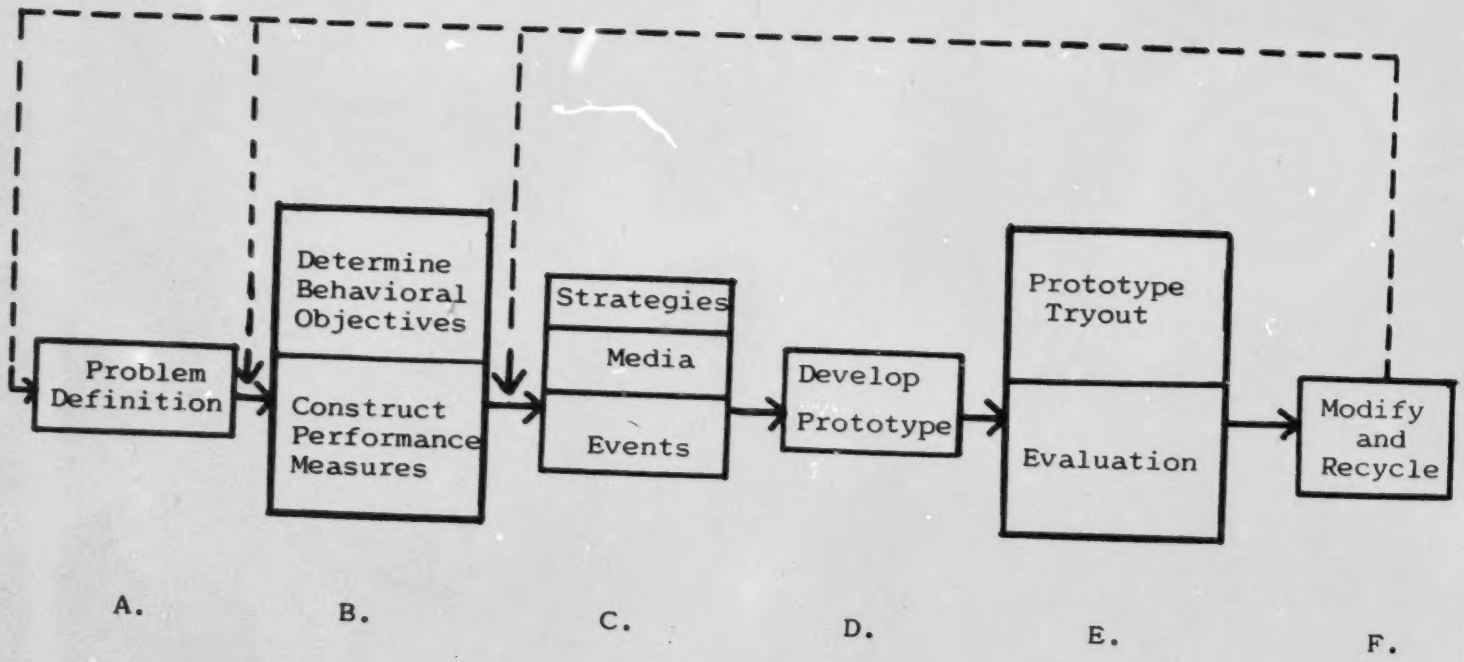


Figure 4. Mini-system flow diagram for developing instructional systems.

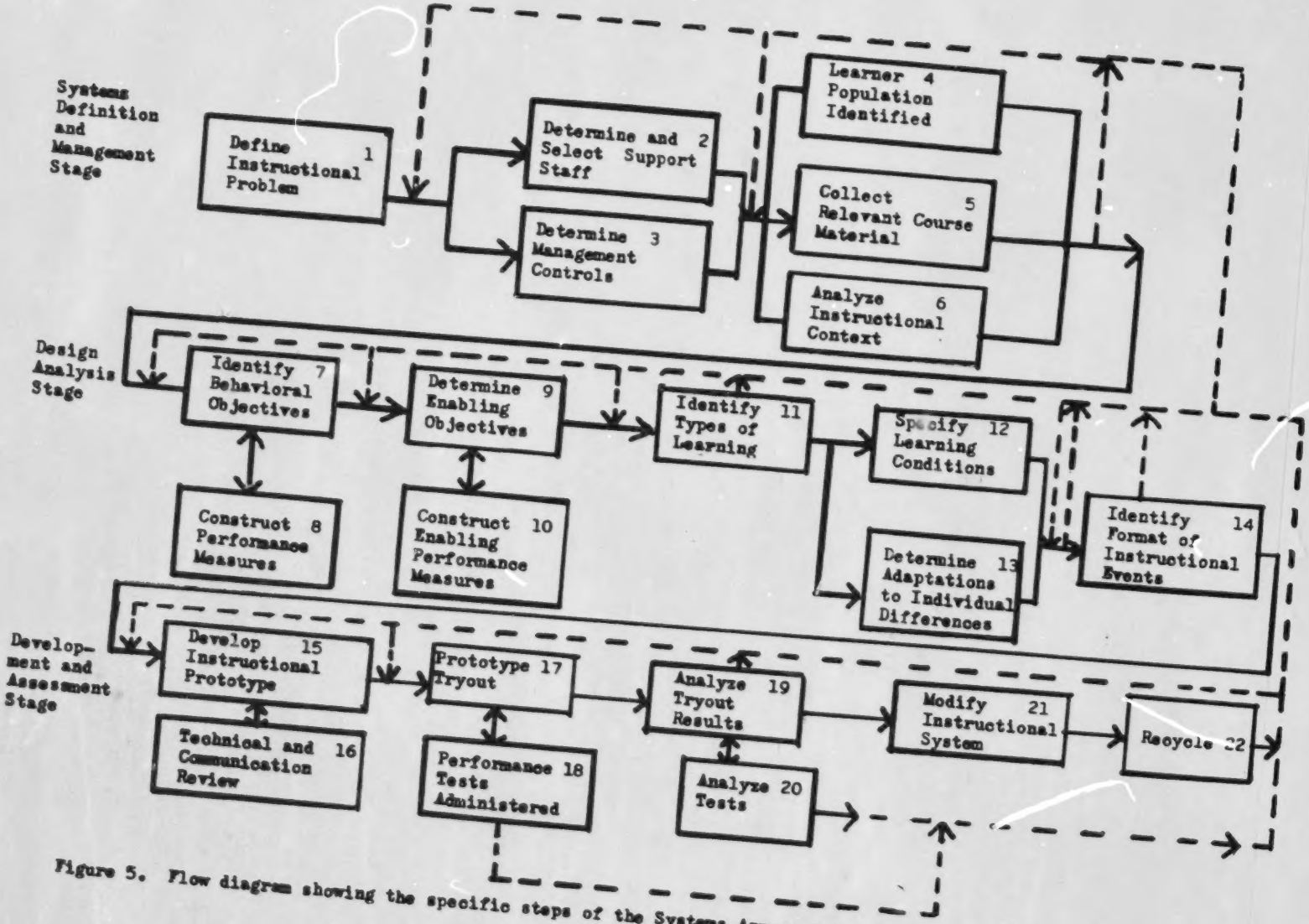

Systems Definition and Management Stage
Define 1 Instructional Problem
Determine and 2 Select Support Staff
Determine 3 Management Controls
Learner 4 Population Identified
Collect 5 Relevant Course Material
Analyze 6 Instructional Context
Design Analysis Stage
Identify 7 Behavioral Objectives
Construct 8 Performance Measures
Determine 9 Enabling Objectives
Construct 10 Enabling Performance Measures
Identify 11 Types of Learning
Specify 12 Learning Conditions
Determine 13 Adaptations to Individual Differences
Identify 14 Format of Instructional Events
Development and Assessment Stage
Develop 15 Instructional Prototype
Technical and 16 Communication Review
Prototype 17 Tryout
Performance 18 Tests Administered
Analyze 19 Tryout Results
Analyze 20 Tests
Modify 21 Instructional System
Recycle 22

Figure 5. Flow diagram showing the specific steps of the Systems Approach in developing instructional systems

because they are disadvantaged. Many have personal problems which interfere with their work. It is important, then, to determine the makeup of the student population and plan accordingly.

Analyzing the instructional context is the next step. Then we go into the design analysis stage. Once this is done, we can begin to define our behavioral objectives and construct our performance measures. These ought to be done early. We have moved away from specific behavioral objectives, except in those cases where we are designing self-instructional packages of a very small nature. Behavioral objectives are useless at the curriculum level. But, if we are talking about teaching the student some specific idea, concept, or principle, then, behavioral objectives make sense. We use intermediate-level or middle-level objectives in most of our curriculum work. If we can get by with a broad objective, why bother to break it down. Break it down when data show that it is too broad for the student to understand, if it will not benefit the student, or if the teacher cannot use it effectively in the classroom as a guide to instruction. It should be broken down only at this time.

The computer, incidently, is an excellent device for showing where the students are having learning problems. We have, in our independent study program, computerized all of our self-evaluation examinations. The student studies the module, goes to the terminal, and takes the self-examination. All his responses are recorded. We can analyze those responses and see if a student really understands the objective. If 90 percent of the students failed a series of three questions on a particular concept, the problem was not with the student but, rather, with the instructional system. So, we go back, break down and rewrite the objectives, rewrite some learning resources, and select better ones. We are usually surprised at the change in next year's class. We can almost watch students learn; this is really exciting.

Schools should not encourage students to be dependent; there is too much of it among them. If students are too restricted, they begin to rebel. For example, I have heard that vandalism costs the Chicago schools more money than their instructional program does. There is something wrong with a system when that happens. Look at children when they first enter school. They are excited about learning, yet we can predict that dropouts will occur as early as the third grade. That is both impressive and depressing. For a critical review of excess dependency on schooling, I strongly recommend that you read Ivan Illich's Deschooling of Society.

You must identify the types of learning involved and the skills needed on behalf of the student. Is it basically memorization or vocabulary study? Is the student being asked some-

thing? Bloom's theory of taxonomy is very meaningful here. It does not make sense to teach at one level of instruction and test at another. To teach a subject at the lowest level of the taxonomy (i.e., identification) and then evaluate the student at a higher level (i.e., synthesis) is very unfair. You should teach and evaluate at the same level. Specify the learning conditions, determine the necessary adaptations to individual differences, and then outline a plan for this particular model.

After you develop the instructional prototype and technical communications review, how is it going to be distributed? Logistics, then, can become a major problem. But, you cannot use logistical problems as an excuse for not doing something. It may require a little more work to change a policy, but policies were designed to be changed. If we become so rigid that it is impossible to change our systems, we will never grow.

Audiovisual people have been trying to make their material as "teacher proof" as possible. We have a contract from the National Library of Medicine to try out a new model for developing self-instructional materials. Films and other self-instructional materials can be broken into small, yet self-contained sub-modular units. This is what we want to do in this project. If a faculty member doesn't want to teach a particular subconcept, he doesn't have to. He can take out the submodule he does not want.

We disseminated our Independent Study Program to the University of Washington. Their faculty looked at our objectives and decided to change over 50 percent of them by rewriting them. They changed about 20 percent of the second module and, by the third module, they changed only about five to ten percent of the objectives. Once they knew that they could, in fact, change them, they realized the work involved and decided not to make so many changes. So, I predict that if you design a flexible system, the faculty will use the material without modifying it too much.

Good instructional development is always carried out by an interdisciplinary team. You should not be threatened by other kinds of instructional experts. Media people should not be threatened by librarians; librarians should not be threatened by evaluation specialists. Evaluation specialists use different terminology but, once you pin them down, you realize they don't know any more about their speciality than you do about yours. So, don't worry about it. You ought to have classroom teachers on this team. You ought to have evaluation and testing people to supply you with the data necessary to find out where you are going. You need a data base to tell you where your students are before you ever start varying the system.

You should constantly keep track of what you are doing. If you do not have an evaluation specialist, it is your responsi-

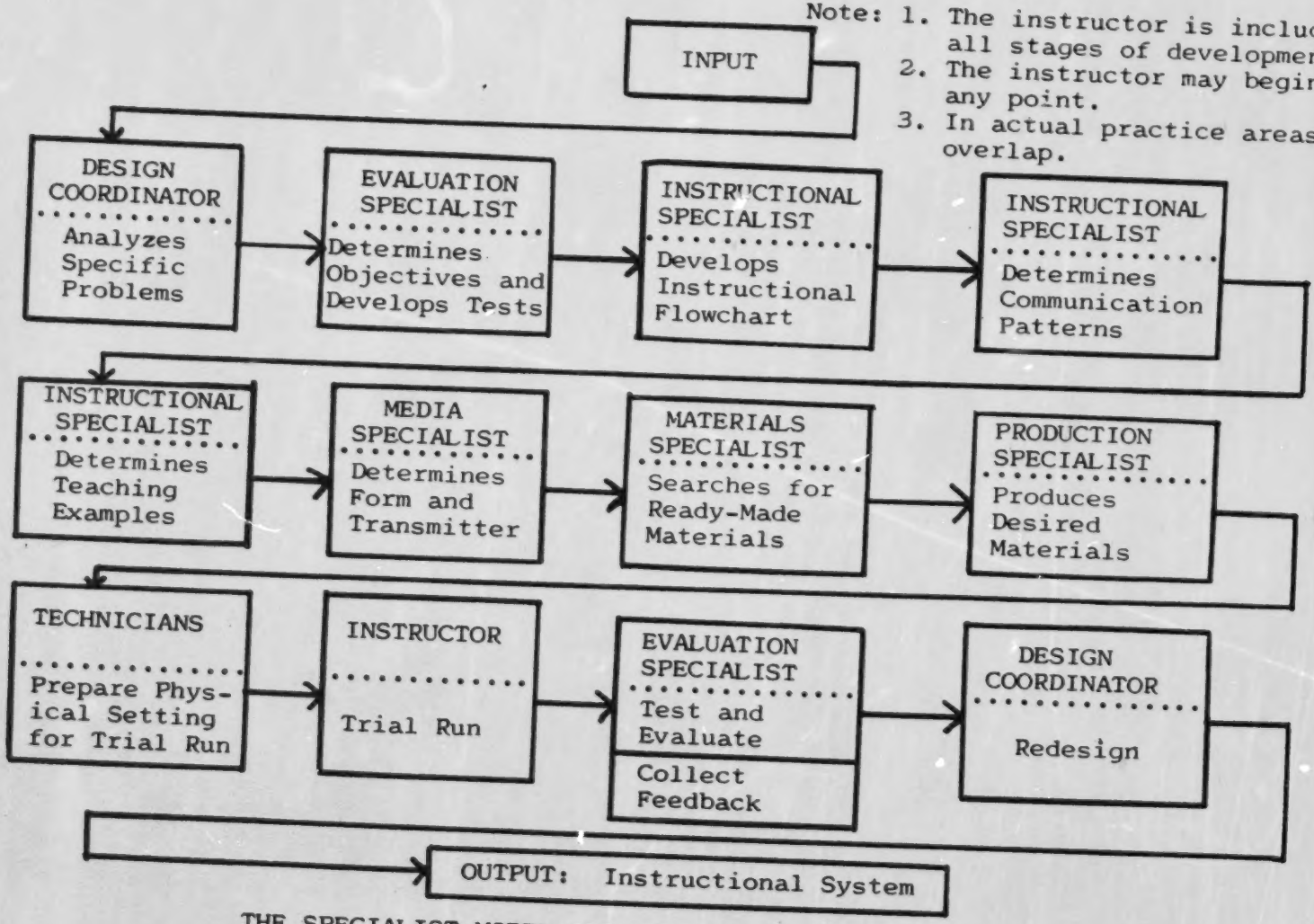
bility as the design coordinator either to hire a consultant or become proficient in evaluation yourself. Determine the objectives and help the instructor. Then, have an instructional specialist develop the instructional flow to determine the communication patterns. (Figure 6) The instructional specialists determine the teaching examples. The media specialist can determine the form. Will it be in a picture or on a slide; will it be on a sheet of paper or in a piece of motion film? What is the form? What is the transmitter? Materials specialists can search for ready-made materials to meet these specifications. If the material is not available, a production specialist can help to produce it. Then technicians can edit the film, produce it, and prepare the physical setting. The instructor has the responsibility for the trial run. An evaluation specialist analyzes the data, and the design coordinator looks at the final product to see how it relates to the original idea. The preceding steps should result in a fully developed instructional system. Don't hesitate to take advantage of other people's expertise. Get their opinions and ideas and take advantage of them. You can either accept or reject their suggestions. Many time expertise is available, but no one wants to use it.

Instructional Packages

Now, let us consider instructional packages. Stuart and Rita Johnson have authored a book on self-instruction entitled Assuring Learning With Self-Instructional Packages or Up The Staircase. Published by Addison-Wesley, this book is well written and easy to read. Although it is designed for teachers, I think you could find it quite useful. The Johnsons have also written another book on attitudes which you will find useful.[4] Basically, their model for self-instructional packages is a very simple one. The staircase demonstrates that, as you move up the ladder, you begin by stating objectives and continue upward by writing a post test, preparing the package itself, testing the material, and, finally, revising the materials. You can see where this fits into the instructional systems approach that I have been talking about. It doesn't matter whether you are talking about instructional systems at a course level or a 30-minute self-instructional package. The key step in the Johnson's model is the practice cycle. You write objectives first and then test the items to define what you want the students to know.

The toughest part of the development of any instructional package is defining the input into the practice cycle. Basically, a practice cycle is input, practice, and feedback. The input provides the student with the information that he needs.

The procedure I follow in a workshop on the development of self-instructional packages is to tell the faculty member to write one objective. As soon as that objective is written, I



THE SPECIALIST MODEL FOR INSTRUCTIONAL SYSTEM DEVELOPMENT

Figure 6

advise him to write a test item to determine whether or not the student has mastered that objective. Then, I ask the faculty member to write a practice cycle. Next, I tell him to give it to a colleague to try it out. If it works, fine. If it doesn't, he must revise it until it does. Teach him to collect the data that he needs. You can do this in about three hours. It is very rewarding to faculty members to have learned this very simple, straightforward kind of process. Write an objective; write several test items; write a very short instructional sequence; execute the practice cycle; try it out on a colleague immediately. Those who are clever and catch onto the system will be able to write a number of these cycles in a short time. You can group these cycles into packages of whatever length you desire. If you think 30 minutes is an optimum length for elementary and secondary students, you can cut it off at two objectives of 15 minutes each, and you have a 30-minute package.

If I had the rest of the afternoon, I would put you to work. I would hand each of you a copy of these materials. By five o'clock, I would expect each of you to have written a ten-minute package which would have an objective, two test items, and a practice cycle. I would ask you to try it out on a neighbor, review the data you received from two or three people, and revise wherever necessary. The development of self-instructional packages is really not a very difficult job, especially if you put yourself in the learner's position.

FOOTNOTES

[1]Banathy, Bela, H., Instructional Systems, Fearon Publishers, Palo Alto, California. 1968. pp. 27, 28.

[2]Hamreus, Dale G., "The Systems Approach to Instructional Development," The Contribution of Behavioral Science to Instructional Technology. published by Division of the Oregon State System of Higher Education by a contract from HEW., p. I-40.

[3]Ibid., p. I-20.

[4]Johnson, Rita B., Humanizing Instruction, or Up the Up Staircase, Self-Instructional Packages, Inc., Chapel Hill, N.C., 1972.

SYSTEMATIC APPROACH FOR THE DEVELOPMENT OF INDIVIDUALIZED LEARNING MODULES

Mrs. Janice E. Richardson

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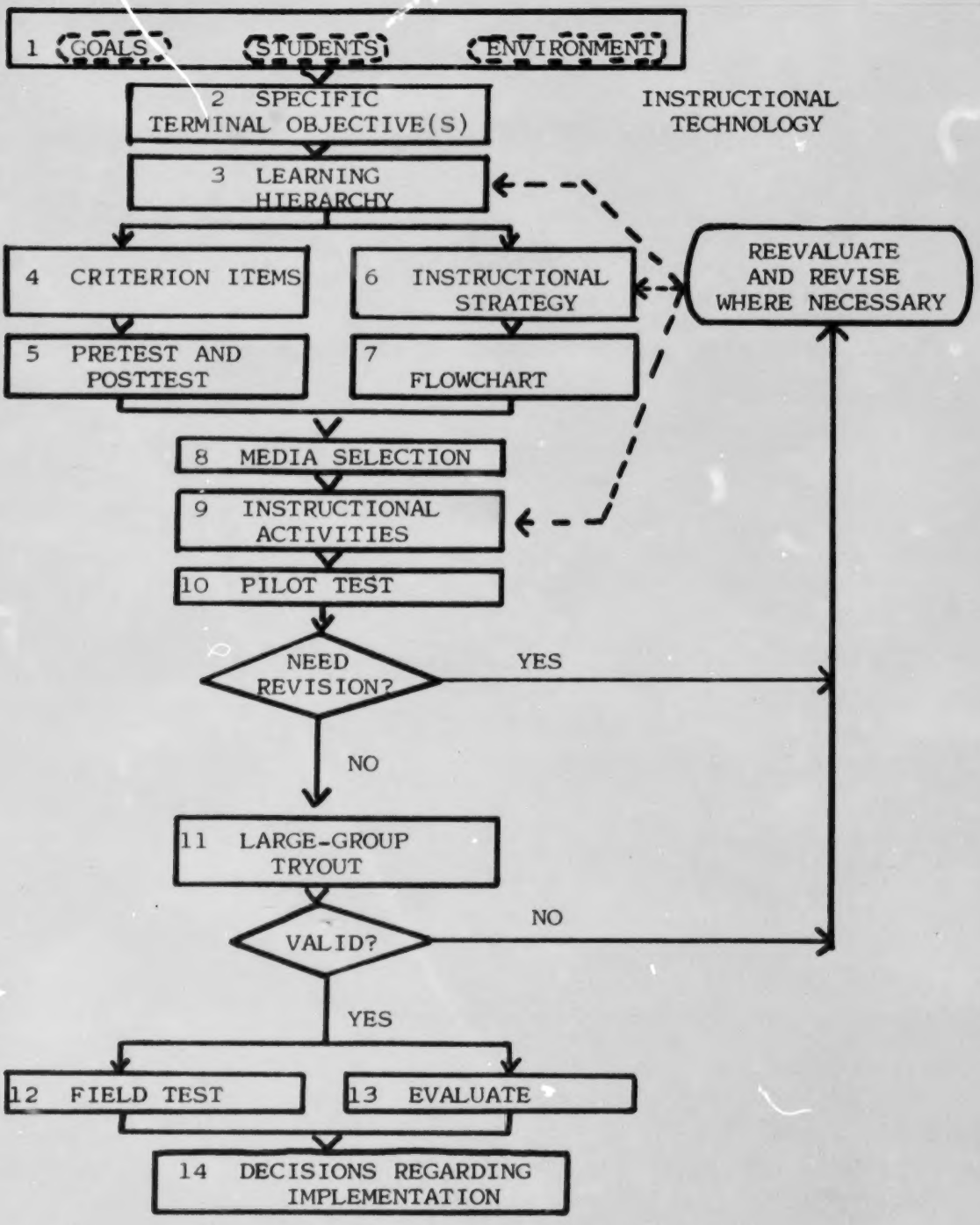
University of Maryland

The objective of this presentation is to give you an overview of one systematic approach for the development of individualized learning modules. At the University of Maryland, we are presently faced with a decrease in available faculty members to teach basic audiovisual courses as well as a significant reduction in operating funds in view of increasing numbers of students demanding basic instruction in this field. Presently, we are experimenting with an approach whereby the basic audiovisual course would be taught in sections of approximately 150 students in a lecture format. In addition to this lecture experience, students would have access to individualized learning modules focusing on basic equipment operation and basic production techniques offered in the basic educational technology courses.

The basic approach utilized in the development of these modules is one developed by Kenneth A. Walter, Teacher Specialist in Staff Development, Montgomery County Public Schools, in connection with his work with the Computer-Assisted Instruction Project. Basically, this approach focuses on a systematic development of instructional objectives, criterion items, construction of learning hierarchies, flowcharts, instructional strategies, validation and evaluation processes. The Montgomery County Computer-Assisted Instruction Project was designed to assess the role of CAI in an operational school setting and to demonstrate the feasibility of staff involvement at all levels in the use of CAI as an instructional medium. The project was funded and initiated in June 1968 with an IBM 1500 instructional system. Presently, the project is being locally funded and is utilizing an IBM 370 model/158 computer in twelve schools in the county.

A major activity of the project was to provide design team members and interested faculty with the skills and knowledges necessary for producing effective CAI materials. A training program was devised utilizing a variety of materials and instructional techniques. Based on the suggestions of the teachers involved and the results of documentation of performance as program authors, a training manual was produced for use in the county. The manual is entitled, Authoring Individualized Learning Modules and is currently available through Montgomery County Public Schools.


1 GOALS
STUDENTS
ENVIRONMENT
2 SPECIFIC TERMINAL OBJECTIVE(S)
INSTRUCTIONAL TECHNOLOGY
3 LEARNING HIERARCHY
4 CRITERION ITEMS
6 INSTRUCTIONAL STRATEGY
REEVALUATE AND REVISE WHERE NECESSARY
5 PRETEST AND POSTTEST
7 FLOWCHART
8 MEDIA SELECTION
9 INSTRUCTIONAL ACTIVITIES
10 PILOT TEST
NEED REVISION?
YES
NO
11 LARGE-GROUP TRYOUT
VALID?
NO
YES
12 FIELD TEST
13 EVALUATE
14 DECISIONS REGARDING IMPLEMENTATION

Instructional Technology: An Overview

Technology refers to the application of scientific knowledge, methods, and research to solve a particular practical problem. This may or may not involve the use of machines.

Instructional technology is a process based on the principles used in systems engineering. An instructional system includes all equipment, procedures, materials, facilities, and personnel required to produce learning. The systems approach involves the arrangement of these various elements so as to maximize the learning of the individual student. The diagram on page 8 illustrates the set of procedures used by instructional technologists to develop effective individualized learning materials regardless of the media employed. Each of the numbered steps in the diagram is described in the following:

1. Select a topic for development based on the requirements of the target population and on curriculum needs.

2. State specifically what the student will do at the end of the learning experience (the terminal objective(s).

3. Construct a learning hierarchy which includes the following steps:

   a) Analyze the task(s) described in the terminal objective(s) into component tasks.

   b) Write the subordinate (enabling) objectives necessary for attainment of the terminal behavior(s).

   c) Order the enabling objectives into a learning dependency relationship.

   d) Identify the entering behaviors.

4. Develop criterion items to measure whether or not an individual has acquired the specific behavior(s) described in each objective.

5. Using the criterion items, assemble an entering behaviors test, a pretest, a posttest, and a diagnostic test, if desirable.

6. Devise a plan (instructional strategy) describing every possible path a student could follow through a lesson segment and indicating the conditions which determine each path.

7. Draw a diagram (flowchart) illustrating the instructional strategy.

8. Select the medium or media (worksheet, programmed text, slides, audio tape, 8mm film, video tape, or CAI) for communicating the instructional message to the learner.

9. Develop the learning activities designed to provide the student with the skills and knowledge necessary to attain each objective.

(A series of slides depicting the Montgomery County Computer Assisted Instruction Project, types of terminals, activities, and course development phases was presented at this point and discussed at length).

Based on the sequential steps required for the production of an Individualized Learning Module, the main body of this manual is organized into four major parts:

I. A Model for Individualizing Instruction - This section presents an overview of instructional technology and the training course.

II. Designing an Individualized Learning Module - A description of each successive step involved in planning and structuring the basic framework for a module is provided.

III. Developing an Individualized Learning Module - This section includes a description of the techniques required to write and revise self-instructional modules and provides learning activities.

IV. Analysis and Assessment of Effectiveness - A description of the procedures for insuring that the module effectively teaches what it is designed to teach is offered.

I would like to quickly walk through this procedure with you and perhaps complete a few learning activities as well. In the packet of materials which was supplied to you, you will see a flow diagram of instructional technology. This will give you an overview of the process which we will be discussing today and perhaps put the process in perspective.

The production of a learning module is accomplished in three separate phases: (1) design, (2) development, and (3) evaluation. The design stage involves the accomplishment and documentation of the following steps:

1. Selecting a topic

2. Defining the terminal objectives

3. Constructing a learning hierarchy

   a. Analyzing the tasks

   b. Writing enabling objectives

   c. Ordering the objectives into a learning dependency relationship

   d. Identifying the entering behaviors

4. Developing criterion test items

5. Assembling and entering behaviors test and the pretest and posttest material

Care must be taken in selecting a topic. One must ask certain basic questions such as whether material has already been developed to support this topic, and whether this topic is indeed necessary for the development of concepts crucial to the body of material being presented.

In defining terminal (instructional) objectives, one must keep in mind the three components of an instructional objective which are as follows:

1. What the student will be doing.

2. Under what conditions will he be doing this?

3. What are the criteria which will define acceptable behavior?

The key to instructional objectives is in the statement of clearly measurable behavior. Such phrases as "the student will know", the student will appreciate", or "the student will really understand" are open to too much interpretation to warrant inclusion as behavioral objectives. Preparing Instructional Objectives by Robert F. Mager is an excellent reference on this subject.

The construction of a learning hierarchy necessitates the ordering of the objectives into a learning dependency relationship--in other words, what has to come first before other steps can be taken! Consider the example on the transparency of changing a flat tire. The ordering of the steps enables one to build a hierarchy of steps by which a student would have to proceed in order to reach the terminal objective. Consider the activity included in your materials concerning baking a cake. Take a few minutes and see if you can order these steps into a dependency relationship and construct a logical hierarchy in

view of the discussion just completed concerning the changing of the tire. Compare your response to that presented on the overhead.

There are basically four types of tests which are used with this type of module:

1. An entering behaviors test which determines whether the student has the behaviors necessary to be successful in a specific instructional program.

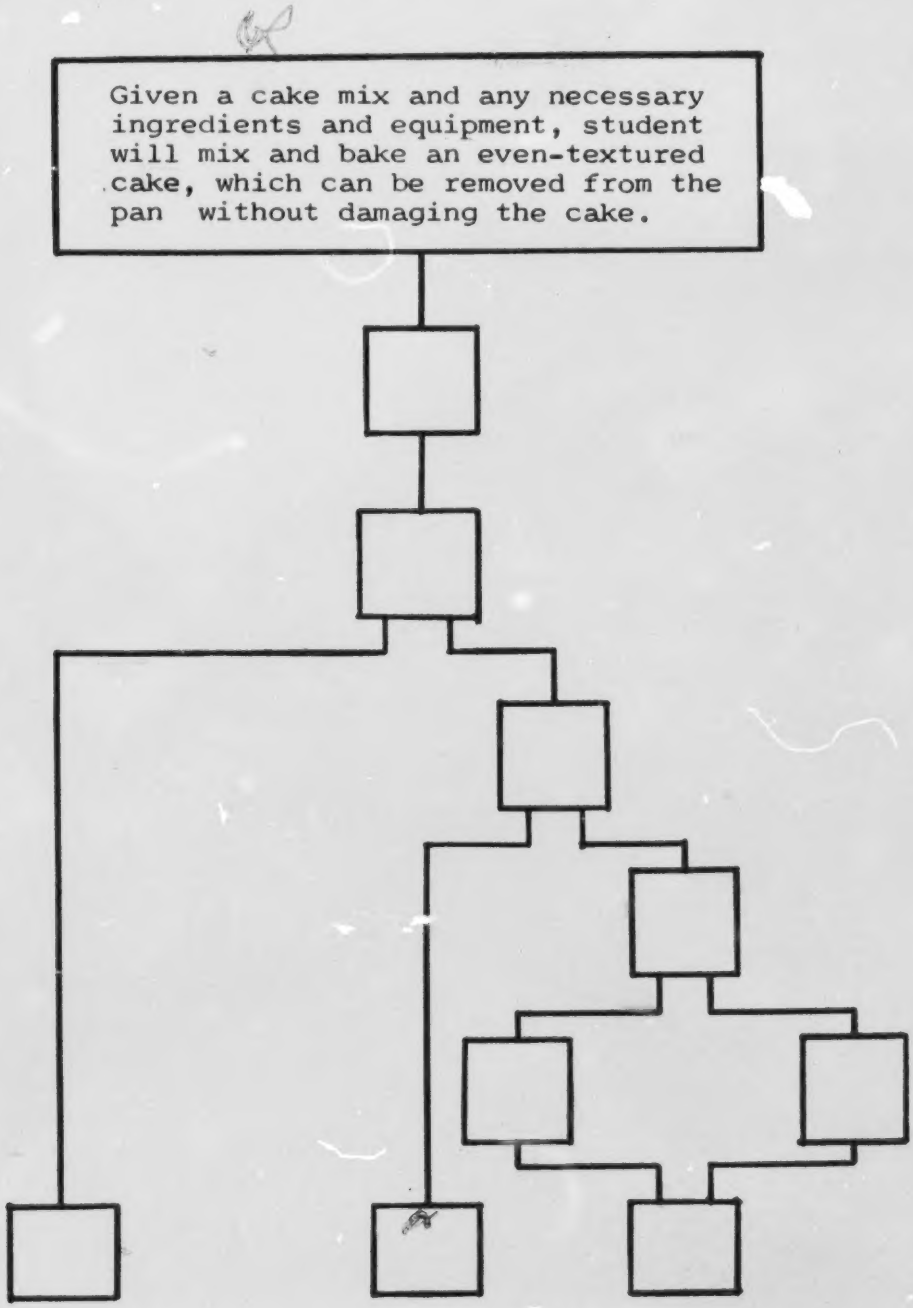
2. A pretest which determines if a student already has the terminal behaviors required for the module.

3. A posttest which determines whether he has the terminal behaviors after completing work in an instructional module.

4. A diagnostic test which determines at what point he will enter the module.

Constructing Hierarchies

Arrange the enabling objectives provided in a logical hierarchy, and write the number of each objective in the correct box in the schematic below.


Given a cake mix and any necessary ingredients and equipment, student will mix and bake an even-textured cake, which can be removed from the pan without damaging the cake.

Constructing Hierarchies
(continued)

1
Place equal amounts of batter into two greased and floured pans and distribute evenly in each pan.

2
Open box and place cake mix in mixing bowl.

3
When automatic timer signals, remove baked cake and turn off oven.

4
Turn on baking unit and set control for proper baking temperature.

5
Given two cake pans, grease entire inside surfaces without any visible excess and place approximately 1 tablespoon flour in each pan, shake and coat pans with flour, and dump out excess.

6
When baking unit reaches proper temperature, place pans containing batter in unit and set timer for prescribed baking time.

7
Measure liquid ingredients into bowl with cake mix.

8
Using electric mixer, mix ingredients until there are no lumps or flour visible.

9
Measure any necessary dry ingredients into bowl with cake mix.

Phase II of the development process includes the accomplishment and documentation of the following steps:

1. Devising and flowcharting the instructional strategy
2. Selecting the presentation media
3. Writing the instructional sequence
4. Editing the draft and translating it to the presentation media
5. Testing the module with a small group of students from the target population
6. Revising the module based on the feedback from the student tryout

Let us look quickly at an example of a flowchart. Basically, this is a graphic description of the instructional strategy for a lesson segment. Its purpose is to help the author visualize the sequence of material and the flow of one segment to another. The flowchart also serves as a guide in the writing and editing of the instructional sequence.

There are a few main rules for basic flowcharting which must be observed. These include flowlines which connect the various symbols in the flowchart. The lines in the flowchart should not cross each other. The arrowheads indicate the direction of flow and the general direction of this flow is from top to bottom for the main line and left to right for the branching lines. If you examine the flowchart in front of you, you will see that by following these simple procedures, the reading of a flowchart becomes a rather simple project but quite an aid in the development of a lesson segment.

In selecting the presentation media for the University modules, a number of constraints had to be observed. The first, and most obvious, was the financial one. At the time the project was undertaken, money was not available for an elaborate hardware distribution system. We were, therefore, looking for a flexible, low cost system which could be utilized with either individual students or groups of students and which students could control themselves. A captioned slide format was selected as it promised direct access to students, low cost distribution, relatively low production costs for supporting material and a format for which students could produce material themselves. At the present time, we have nine student production teams using the process being described to you today generating material which will be used to support future classes in the captioned slide format.

Phase III of the development procedure includes validation, field testing, and evaluation which will provide the data upon which decisions regarding the utilization of the module will be made. The validation process begins with a large-group testing with members of the target population. Only students not possessing the terminal objectives already may be included in the validation sample. Conditions for this process must be identical to those under which the module was developed. Data from this large-group tryout determines the next step. Validation determines whether or not the module does what it was designed to do. If the performance of the group meets at least the minimum acceptable standards set for validation, the module is valid for that particular population under the conditions of the test. After successful validation has been completed, field testing and/or evaluation can occur and the results can be generalized to larger populations.

Currently, plans are underway to develop modules focusing on basic projection equipment: carousel slide projection, 16mm, super 8, basic tape recording techniques using both reel-to-reel and cassette tape recorders, videotape recording, transparency production, use of the overhead projector, basic camera techniques (35mm), photocopy techniques, and production of slide-tape presentations. It is anticipated that these modules will be completed and ready for validation by the Fall semester of 1976. Each module will include the development of task analyses, instructional objectives, learning hierarchies, flowcharts, instructional strategies, and rationale for media selection.

A SYSTEMS APPROACH TO MEDIA PROGRAMMING: AN EXAMPLE OF INTEGRATING MEDIA SKILLS WITH THE SCHOOL'S ONGOING TEACHING-LEARNING PROCESS

Mrs. Jean N. Gilliam

Assistant Director
Department of Pupil and Program Appraisal

Montgomery County Public Schools

When I was approached to do this workshop, I was asked to make a presentation on a systems approach to media programming, with the emphasis on how such programming is related to the teaching-learning process. I was very interested in doing such a workshop because that approach is precisely the one we have been taking for the past five years in Montgomery County, Maryland.

In thinking about the program, I decided the best way to approach this topic might be to pose a series of questions which I would then answer for the workshop participants. All answers that I give to these questions will be in the context of interpretation and use in Montgomery County. As was pointed out in the main session this morning, there are many systems-approach methods for doing things in a systematic way. This is the approach we use; therefore, as I discuss both a systems approach to media programming and the components involved, I shall be explaining the framework that I designed for use in Montgomery County Public Schools (MCPS).

In examining our systems approach to media programming and in explaining the MCPS example of integrating media skills with the school's ongoing teaching-learning process, I shall discuss five questions:

1. What is a systems approach to media programming?
2. What components need to be addressed?
3. What process was used in MCPS to develop these components?
4. What do these MCPS components look like?
5. How does the integration of these MCPS components into the teaching-learning process relate to media program accountability?

First, let us look at what a systems approach to media programming is. It is an integrated group of program components organized to accomplish stated objectives. These components and

objectives are related to all of the services which the media specialist makes possible, involving various aspects such as (1) the collection, (2) facilities, (3) assistance to students, (4) assistance to teachers, (5) the creativity of the media specialist in setting up learning activities and/or teaching opportunities for students and teachers, and (6) public awareness of the media specialist; e.g., letting students and staff know about when new things will appear on television programs.

A systems approach to media programming involves an integrated group of components; therefore, I feel the following four components need to be addressed:

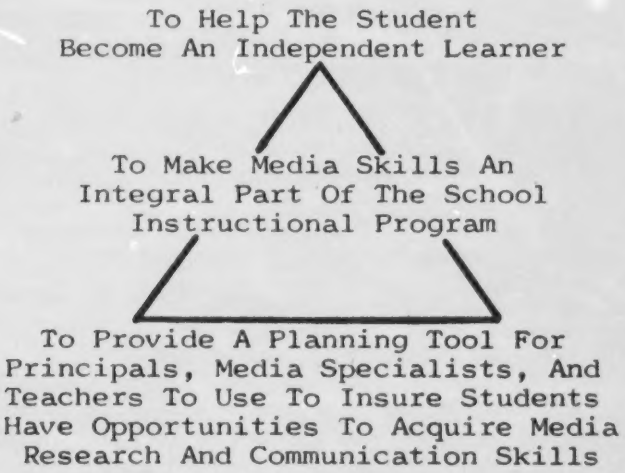
1. What is to be learned by the student?

2. What has the student learned?

3. What administrative actions and services should a media specialist be responsible for (criteria for implementing a unified school media program); have they been provided?

4. What criteria should be set up for media specialist performance; have they been met?

In designing this MCPS approach to media programming and integrating media skills into the school's ongoing teaching-learning process, there were three overall objectives which we hoped to accomplish. These objectives are graphically presented in the pyramid below.


To Help The Student
Become An Independent Learner
To Make Media Skills An
Integral Part Of The School
Instructional Program
To Provide A Planning Tool For
Principals, Media Specialists, And
Teachers To Use To Insure Students
Have Opportunities To Acquire Media
Research And Communication Skills

The base of the pyramid represents our objective to provide a planning tool for principals, teachers, and media specialists which can insure that students have opportunities to acquire media research and communication skills. Between the base and the apex is the objective related to making media skills an

integral part of the school's instructional program. At the pyramid's apex is our major objective in this effort; i.e., to help the student become an independent learner.

The process used for developing this program has taken place over an extended period of time beginning in 1971. In September 1971, the field services divisions of the Departments of Educational Media and Technology (DEMAT) and Pupil and Program Appraisal (DPPA) began the development of a K-12 sequence of instructional objectives for media skills. The purposes in undertaking this task were:

1. To develop a suggested K-12 scope and sequence of media research and communication instructional objectives which could serve as an interdisciplinary planning guide for teachers and media specialists,

2. To develop sample assessment measures for each of the instructional objectives created,

3. To disseminate materials as the working copies were produced,

4. To obtain feedback on materials disseminated so that decisions could be made concerning modification of materials, and

5. To provide examples for establishing criteria (the kinds of evidence needed as well as how evidence needed) for student attainment of each objective.

A media skills committee was set up and directed by Miss Doherty, DEMAT media supervisor, and me. During the month prior to the first committee meeting in November 1971, I carefully examined MCPS curriculum materials as well as worksheets, suggestions, or outlines of activities sent in by media specialists. From this background of materials, I selected or created instructional objectives and structured them into a chart containing a suggested sequence of media skills within a format of six major categories and eight levels. In monthly meetings throughout the 1971-72 school year, the committee, under the direction of Miss Doherty and me, worked on placement of objectives in the eight levels; agreed upon a format for sample assessment measures; and began, in the spring, the process of developing such measures. Working copies of the suggested scope and sequence chart were distributed to principals and media specialists in April, 1972, with a request to review the chart and send any comments or suggestions to Miss Doherty. In April and May, Miss Doherty and I met with the media specialists in their area meetings to furnish background on development of the chart; to answer any questions concerning the chart; to explain its use; and to obtain feedback valuable to the committee in further refinement and development of materials.

When the MCPS Program of Studies was issued to schools in September 1972, a working copy of the media skills scope and sequence chart was part of the multidisciplinary section. This enabled the committee to obtain additional, helpful teacher feedback. Throughout the 1972-73 school year, the committee worked on writing at least one sample assessment measure for each instructional objective on the media skills chart. As they were produced, the assessment measures were critiqued by the committee. I worked on the final review and rewriting of levels A-F in the spring and early summer of 1973. Miss Doherty and I worked on the final review and rewriting of levels G and F in the fall of 1973. In May 1973, I developed a Pupil Progress Profile which is a record-keeping system keyed to the instructional objectives on the media skills chart. The use of the progress profile is optional. Through the use of this record, a child's attainment of the objectives can easily be noted as the child progresses through the various skills.

A major goal of the committee for the 1973-74 school year was the development of guidelines which could be used for implementing the media research and communication skills program. I developed multidisciplinary record for grades 7-12 in the spring but there are record-keeping problems at the secondary level which still need to be worked out. The committee hopes to arrive at solutions through trial-use of the record in a junior or senior high school. The committee again requested that ideas and suggestions be sent in by teachers, media specialists, and principals. Such input is helpful in setting up additional assessment measures and in evaluating the usefulness of the media program materials.

Materials have been developed for the student component of the program to include the following:

1. Suggested Scope and Sequence of Instructional Objectives for Media Research and Communication Skills, K-12 (Media Skills Chart)

2. Sample Assessment Measures for Levels A-E (elementary)

3. Sample Assessment Measures for Level F (secondary)

4. Sample Assessment Measures for Levels G and H (secondary)

5. A supplement of sample assessment measures for research and communication skills in the social sciences for Levels G and H with content area samples in American history, anthropology, economics, sociology, and world history

6. Pupil Progress Profile, K-12 (optional); Multidisciplinary Record 7-12 (optional)

7. Bibliography of Materials Related to Teaching Media Research and Communication Skills

Staff are presently keying instructional resources and packages to the student instructional objectives of the media skills chart.

The media specialist administrative and service objectives (Criteria for Implementing a Unified Media Program) have had pilot use and are now being revised. A completed copy of these has not yet been published. These objectives spell out actions related to acquisition, selection, inventories, maintenance, facilities, organization of collection, utilization, and instruction. The criteria are set up in a way which allows us to get feedback.

A task force committee prepared eleven media specialist performance criteria and the evaluation system which are now being piloted during the 1975-76 school year. Based on feedback from this pilot, revisions will be made, as needed. These eleven performance criteria, very simply, spell out the things a media specialist should be doing relating to students, teachers, principals, and the area or central office. Each of the criteria has several indicators which are specific actions cited as examples of general performance criteria. Also included in the MCPS media specialist evaluation system are the number and kinds of observations to be made, as well as precisely how the evaluation will take place.

How does the integration of these MCPS components into the teaching-learning process relate to media program accountability? Media program accountability begins with goals or objectives (desired behaviors), uses processes, and measures outcomes. What, then, is the simplest definition of accountability which I can give you? It is that accountability is evidence--evidence of some accomplishment. If accountability is evidence, then we will need to measure something. What kind of evidence can we measure? We can measure student performance, practitioner performance (media specialist performance), and program performance. In order to measure, we need to get facts; so measurement, simply put, is getting the facts. We, therefore, need to have instruments which are devices for collecting facts. Within the MCPS components framework, (1) we look at student performance on media skills objectives for evidence (student achievement and attitudes related to media skills) through the use of instruments such as classroom assessment tasks and measures, norm-referenced tests, and student questionnaires; (2) we look at unified media program objectives for evidence (services offered and services achieved) through the use of instruments such as systematic records and student or teacher

questionnaires; and (3) we look at media specialist performance for evidence (actions taken and results achieved) through observations, conferences, and systematic records utilized in our media specialist evaluation system.

Why do we want to be accountable--to get the evidence? Because getting these facts (1) helps us to make the program better, (2) enables us to help a student learn what he may not have yet learned, and (3) affords the chance for teachers and/or media specialists to augment materials or modify methods and techniques. The major focus of our systems approach and our integration of media skills into the school's ongoing teaching-learner process is for improvement. Our ultimate aim is to help the student become an independent learner.

SYSTEMS THEORY AND ITS APPLICATION TO THE IMPROVEMENT OF EDUCATION

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In this paper systems theory and concepts are conceived as significant intellectual skills which educators should rationally apply in their efforts to refine educational organizations and processes. The relationship between the systems view and the development of instructional programs is emphasized. It is asserted that advances in the effectiveness of educational efforts is more likely to occur if the instructional process is recognized and supported by authorities (formal/informal) as the primary sub-system of complex educational organizations. It is also asserted that a systems approach is an area of technical skill,* and that shortcomings among instructional leadership personnel in areas of technical competence have seriously impaired their work. The paper concludes with a brief discussion of recommendations regarding the preparation of individuals for the responsibility of systematic development of instructional programs.

Introduction and Background

The origins of the systems development concept are complex. It is clear, however, that its development and application were nurtured by the realities of World War II and subsequent international confrontations. These conditions prompted sophisticated advances in problem identification and analysis as well as in design, engineering, and industrial production. Since the issues and problems were complex, the response required was of the same order. Specialists from a wide range of disciplines and technical fields came together to study problem areas and define alternative solutions, including the analysis of their comparative efficiency and effectiveness.

Prior to these developments, scholars and practitioners in various disciplines tended to explain phenomena by reducing them to elementary units independent of each other. More

*As defined by John K. Galbraith, "the systematic application of scientific and other organized knowledge to practical tasks." The New Industrial State, (Boston, Massachusetts, Houghton Mifflin Company, 1967, p. 12)

recently, scholarship and problem-solving efforts in many fields have shown concern for wholeness, for the interactions of elements, and for the consequence of these interactions with respect to knowledge and behavior.*

Classical systems theory emphasizes the application of mathematics and mathematical models. Its aim is to state principles which can be applied to systems in general, or sub categories of general systems, and to provide techniques of investigation and description for application in concrete cases. The use of systems theory has been aided and paralleled by developments in various fields. Computers, for example, have opened new approaches in systems research by facilitating calculations. More importantly, however, they have permitted experiments and models to be completed as a basis for decision making while the results are further checked out by experimental data or direct application. Set theory, graph theory, cybernetics and information theory are a few of the contemporary fields in which the principles of general systems theory are employed.

Recognition of the mathematical and empirical nature of these fields may raise a question about the suitability of constructing a synthesis of systems principles for use in the study of instructional systems. The fact that schools and instruction-related organizations (open systems) are not isomorphic with systems or fields where classical systems theory has been nurtured does not deny the value of employing principles of systematic analysis in studying instructional development. Ludwig Von Bertalanffy (1968) wrote:

> A verbal model is better than no model at all, or a model which, because it can be formulated mathematically, is forcibly imposed upon and falsifies reality. Theories of enormous influence such as psychoanalysis were unmathematical or, like the theory of selection, their impact far exceeded

*Ludwig Von Bertalanffy (1968) relates the move to a systems or wholeness orientation in many areas of inquiry including: De-Shalit, Physics, and A. Szent-Gyorgyi, Physiologist; in psychology, there is the significant impact of Piaget; in psychiatry, Menninger and Grinker expressed unified theory in the study of human behavior; and in sociological theory Sorokin was one of the early proponents of a systems perspective in the interpretation of social phenomena.

In education, the efforts of Tyler, Bloom, Gagne, and others have provided a theoretical and conceptual base for mastery learning and the humanization of education through the systematic development of instruction in support of the learning process.

> mathematical constructions which came only later and cover only partial aspects and a small fraction of empirical data.
>
> ...Models in ordinary language therefore have their place in systems theory. The systems idea retains its value even where it cannot be formulated mathematically, or remains a "guiding idea" rather than being a mathematical construct.*

Russell L. Ackoff (1971) defines the concept of system as follows:

> Thus a system is an entity which is composed of at least two elements and a relation that holds between each of its elements and at least one other element in the set. Each of a system's elements is connected to every other element, directly or indirectly. Furthermore, no subset of elements is unrelated to any other subset.

Convergent views in systems theory and application wane beyond the concept of systems. Variation in definition and use of terms in systems study is widespread. At first view this may appear to be a serious problem. Clearly, it does make for complicated communication among researchers and practitioners in different fields where systems applications are being tested. Ackoff (1971) noted an interesting observation on too hasty a move to close off the variation and diversified vitality expressed in the struggle toward a closed definition of systems concepts:

> It is almost as if the pioneers (of systems thinking), while respectfully noting each other's existence, have felt it encumbent upon themselves to work out their intuitions in their own language, for fear of what might be lost in trying to work through the language of another. Whatever the reason, the results seem to justify the stand-offishness. In a short space of time there has been a considerable accumulation of insights into system dynamics that are readily translatable into different languages and with, as yet, little sign of divisive schools of thought that, for instance, marred psychology during the 1920's and 1930's. Perhaps this might happen if some influential group

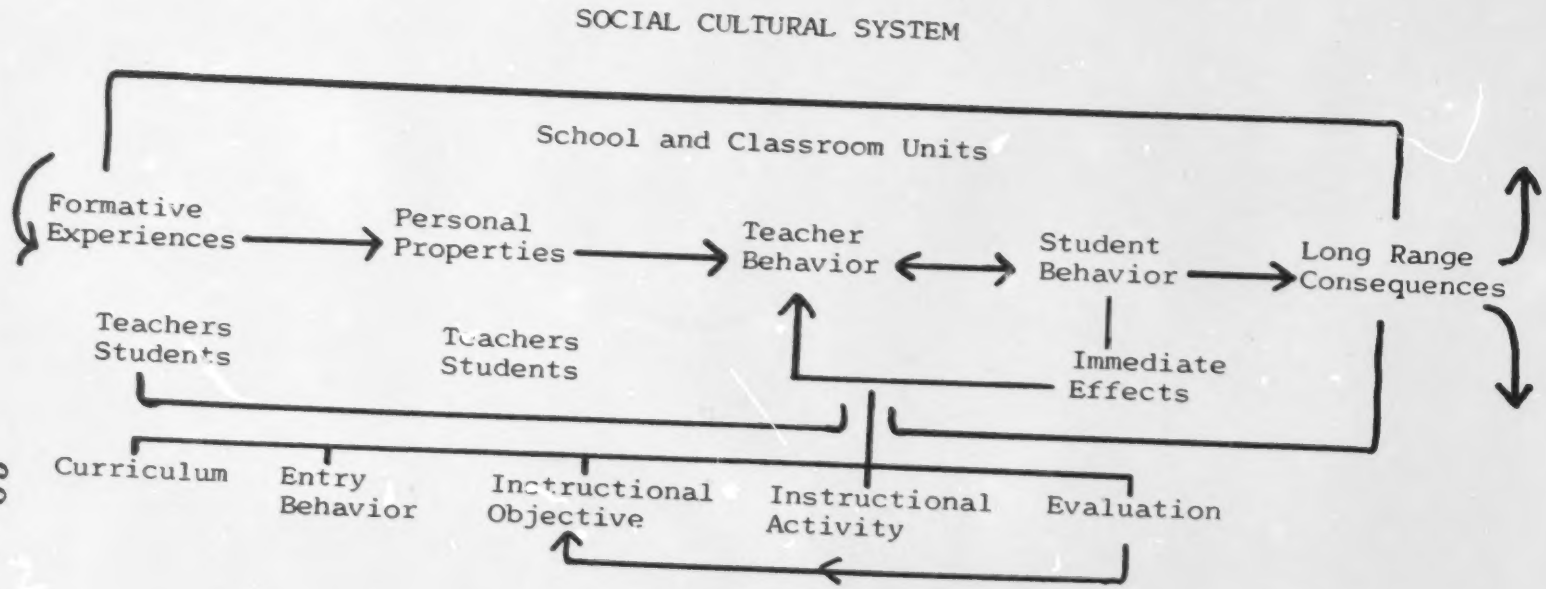
*Ervin Laszlo (1972) commented on this statement. "But I think he also implies that such a condition should be a temporary shortcoming and that eventually a theory (in sociology, for example) can be scientific only when it has been formulated mathematically."

of scholars prematurely decided that the time has come for a common conceptual framework.

The idea of system and a systems approach to the study of educational and instructional issues has prompted analysis by a number of individuals (Banathy, 1973; Combs, 1968; Corrigan and Kaufman, 1966; Gagne, 1962; Silvern, 1968; Davis, Alexander, Yelon, 1974). These interpretations produced diversity in emphasis but congruence regarding the need to view instructional design holistically. This contrasts with an approach to analysis which focuses on parts, where the inter-related nature of the properties of elements comprising the larger system is avoided or minimized.

A Model of Teacher Effectiveness

Systems applications to instructional development require a framework beyond basic definitions. Such a framework or conceptual model is helpful in the interpretation of critical elements and the functional relationships among the elements which make up the larger structure in which the instructional process is expressed. Bruce J. Biddle's model (1964) was originally presented to indicate variables related to teacher behavior. It depicts the relationship of elements proposed for inclusion in the systematic study of instructional effectiveness. Biddle's model emphasizes the primacy of teacher-student transaction, while suggesting that in the complexity of educational organizations the instructional system is one subsystem. The instructional subsystem is effected by the personal properties of the individuals interacting, the constraints imposed by the school as a formal organization, and the larger social-cultural system which has created the school and which, in turn, is served by it. This interaction of the Biddle model is but one example of the conceptualization process which is needed if systems concepts are to be applied to the development of instructional programs, including the support systems (management, resources, decision making) which help translate program designs into vital and positive expressions of the instructional process.



ISD

ANALYSIS

social system
learner
organization
teaching process
planning
nature of knowledge

DESIGN

learning
intellectual skills
instructional
objective, activity
media production
delivery systems

EVALUATION

research
statistics
measurement
evaluation
computer
applications

Interpretation of the Model

The school, as a formal organization, has its origin in the larger social system. The values and the degree of pluralism in the social system are context conditions which press upon the school. The goals of the school in terms of the cultural heritage, the promotion of rationality, and the transmission of learning skills are viewed against the reality of local conditions. The larger social context directs and constrains individuals as well as organizations. Teacher and student have been shaped through a set of formative experiences. These experiences, in combination with personal attributes and individual chemistry, promote the expression of personal properties. These properties are relatively stable, yet tentative, manifestations of skill, motivation, and knowledge. The personal properties of teacher and student interact dynamically within the context of school in a range of instructional arrangements. The quality of this interaction, expressed in its vitality, authenticity, and other more objective measures, reflects a qualitative essence and suggests a level of effectiveness. In the short term, the student's view of school and the arrangements contrived to help him learn, his motivation, and possibly his demonstrated performance in terms of achievement will bear a relationship to the quality of the interactive effects as an expression of the mix of teacher and student properties.

The teacher's role includes the analysis of self as part of the total system in which he operates. It also includes knowledge and the need to expend efforts to refine knowledge regarding the social-cultural dimensions, the school as a formal organization, curriculum responsibilities, and students, including their properties, needs, and aspirations. It is the teacher's role to probe and analyze these conditions as given in a reality in which the teacher's power and knowledge are directed toward the development of personal knowledge among students. Intuition, openness, sensitivity, conceptual strength, all such attributes are applied as teachers seek to define, through their instructional decisions, an equation of effectiveness. This process emerges out of knowledge and intuition, and where combined with planning and design skills, the nature of instruction as a system is demonstrated. In any event, teacher behavior and decisions wake student response. The immediate response may be expressed internally as a mood, feeling, or stream of consciousness; the immediate response may be overt in the form of a statement or demonstrated ability. The more long-range consequence of teaching and the instructional system will be the cumulative competence of the student(s) and the benefits derived by the individual, as well as the society, from the student's move toward personal fulfillment.

In recognition of the complexity of instructional development and the attendant concerns of efficiency and effectiveness, school systems have appointed personnel charged with these res-

ponsibilities. Their responsibilities center on the design and development of instructional programs, the development of people, and the organizational conditions required in support of instruction. In general, these personnel are called supervisors although the exact title and role descriptions are legion. Supervisors in education feel the pressure to attend to management functions to the detriment of efforts directed toward instructional development. In effect, organizational constraints and the lack of conceptual and technical skills in systems theory and instructional development constrict efforts to advance instructional effectiveness. If systems concepts and models are to be used in that they will contribute to plans of action and intervention, the distance between thinking about, writing about, and application must be reduced. The problem is real and a challenging one.

Instructional Leadership and the Skill Mix

Joan Woodward (1958) studied the relationship of an organization's characteristics to supervisory arrangements. Over 100 firms were studied and were classified according to production technology and goal structure. One group included firms engaged in mass production, a second comprised industries using a continuous process system of production, and the third included those based on unit production.

In the mass production category were firms whose end-product was produced in relatively small discrete steps or stages. The supervisors in mass production enterprises are line supervisors. They are close to the production process and, from the point of view of technical knowledge, are inter-changeable with the line workers. The line supervisor must be familiar with the production technology and be a ready hand when and where the production line falters. The supervisor in a mass production system is a strategic factor in overall production. He has need of highly efficient technical skills which must be continuously demonstrated as he supervises the work of a department or an individual.

Continuous process production systems provide a different setting for the supervisor. The workers for whom the supervisor is responsible will be limited in number. The production process is highly technical and of a sophisticated nature. The critical stages in the production process call for the reading, checking, and control of technological devices and procedures pre-designed to turn the raw material input into the final product. The production process is itself a complicated expression of science in accord with carefully tested plans. In this setting, the supervisor is responsible for highly trained personnel whose preparation includes technical ability as well as knowledge about the theoretical roots of the production technology.

The third production systems studied by Woodward was unit production. This system is expressed in the constant decisions and creativity of one or a small group of workers. Unit production implies as open an approach to production as that which is expressed in a work of art. It begins with raw materials. There is an end-goal in the mind of the producer and the movement toward the end in terms of pace and quality is determined almost completely by the unit producer. Whether making special order furniture or devising a new synthetic in the laboratory, it may be the worker's design (certainly to a great extent his skill) that will determine the outcome. Skill here suggests a mixture of knowledge, sensitivity, and commitment to task in addition to technical know-how. As the product moves toward completion, the unit producer faces many decisions. Working directly on product completion and controlling related conditions in the production environment are significant concerns of the unit producer. He draws on colleagues and uses the full range of resources available to him in the organization.

The point to be emphasized in these statements on supervision and technology is that the nature of the production system itself, the organizational culture which includes its degree of technology, tends to determine what is needed in terms of supervisory competence.

These descriptions of supervision, as related to an organization's production system, have implications for educators engaged in the supervision of an instructional system. The promotion of knowledge and the stimulation or development of self-reliant and effective human beings are a more complex goal than those of an intricate technical conglomerate, such as General Motors or American Telephone and Telegraph. There may be overtones of mass production steps and continuous process arrangements within existing school organizations. However, as a production system, school organizations emphasize unit-level production characteristics. Each classroom or instructional mode can be considered a production unit. The ends in mind are the consequences of the curriculum and the instructional system as expressed in the feelings and performance of the students. The raw materials consist of the students, with their diversity of needs and dispositions, as well as the behavioral, conceptual, and affective outcomes which are anticipated from the instructional process. The teacher(s) as the unit producer(s) makes decisions in helping students toward the desired effects. Just as important, the teacher is designing the desired effects with the students, since, in the most significant way, the humaneness of students is related to the expansion of themselves out of a curiosity and need to know. In this sense, the teacher is a unit-level production worker. This is not mechanical, nor does it minimize the areas of feelings and human processes. Rather, it is a way of emphasizing the vast room for decision-making and personalizing which falls upon the teacher or teaching team and, in like manner, upon the educational supervisor who accepts

the responsibility of intervening to make instructional efforts open and positive as related to individual students. The quality of these decisions will be a major variable in determining the outcomes of instruction.

A range of personal properties is required for successful supervisory performance. Floyd C. Mann (1965) suggests that research supports the need for supervisors to develop competence in three general areas: technical, human, and administrative or managerial. Mann refers to this combination of competence areas as the skill-mix. The effective application of the skill-mix will enable the supervisor to link together the different parts of the organization and to integrate the specialized performance of the different units. This supervisory role supports the unity and coherence of the organization. As seen by Mann, the coordinating function is part of the management functions of the supervisor. It entails communication and balancing the work of the different divisions or organizational sub-systems as well as personalized interaction with individual members of the organization.

The managerial skill needs to be balanced with human relations and technical competence. In the psychological realm, the results of supervisory behavior are expressed as staff morale and commitment to organizational goals as well as communication and technical performance. The supervisor in many ways represents the critical link between the management or top leadership level in an organization and the line worker or unit production professional in the production system of the organization.

Technical competence represents the third dimension of Mann's (1965) essentials for the supervisor. He defines it as:

> The ability to use pertinent knowledge, methods, techniques, and equipment, necessary for the performance of specific tasks and activities, and for the direction of such performance. Fundamentally, it involves understanding and proficiency with respect to a specific class of functions in the organization. These include not only concrete motor skills, but also the abstract orientations and basic frames of reference that are normally associated with particular professional roles and affiliations. Technical skills may be acquired through formal training in professional schools, informal on-the-job training, or combinations of academic and internship or apprenticeship programs.

The combination of these three areas of supervisory competence form a framework for analyzing supervisory behavior. Each consists of definable subsets. The definition of the par-

ticular subset requirements or the form they take will be determined, to a great extent, by the type of organization which the supervisor serves. Human relations, for example, is clearly necessary in supervision, since modern organizations are human systems as well as production systems. The members of the organization, though they may perform at different levels, still express a complicated inter-dependency in striving to make their individual and collective contribution to the work of the organization. Where the organization's character is mechanical, to the extent that many of its operations are predetermined with little likelihood of needed adjustments, the human relations skills required of supervisors will be tuned to this condition. It is not that human relations become less important under such conditions, but that the intensity and form of the human relations contact will correspond to the overall conditions of the organizational structure.

An effective mixture of the three skill areas--administrative or managerial, technical, and human relations--will provide the base for supervisory performance. The definition of the best combination and the ingredients that comprise them remains a moot question.

It must be recognized that effective instructional supervisory behavior as conceptualized and reported over the years in the professional literature has heavily weighted the human or interpersonal skills. There appears to be an almost conscious effort to exclude technical competence as a requirement for effective instructional supervisory performance. This exclusion may be the reason instructional supervision has not been recognized as a mature and significant professional role. Supervisory performance which lacks demonstrated competence in technical skill areas is at best peripheral to instructional development and the support of learning.

Research studies on instructional supervisory performance confirms the priority of technical performance by supervisors. Technical skills are perceived with high priority, while they are typically employed at significantly lower levels of frequency and effectiveness. The reasons for this condition are varied. Some supervisors by virtue of the press of central office considerations find themselves engaged almost totally as managers, as communications links with constant requirements for reports, and descriptions of what is. This is a maintenance definition of supervisory activity. Overindulgence in this area, as important as the management function is, dilutes the supervisory role and saps the energy of the supervisor until he is converted to the equation of management as instructional development.

Technical Skills and Instructional Systems Development

These perspectives are principles expressed in various de-

signs for the construction of instructional systems. Robert M. Gagne and Leslie J. Briggs (1973) have defined the following steps in the instructional design process:

1. Analysis and identification of needs. Instructional needs usually fall into one of three categories: (1) need to conduct instruction more effectively; (2) to revise the content and/or learning activities in a part of the curriculum and; (3) to develop new curriculum components or total programs.

2. Definition of the goals and objectives. The next step is to describe the goals and objectives for the instructional system. Ordinarily this moves from the general to the specific. This procedure is vital to the understanding of detailed instructional objectives in terms of a broader concept of goals.

3. Identification of alternate ways to meet needs. Given the analysis of needs and the systems goals and objectives, an analysis must also be made of alternate ways of achieving the goals.

4. Designing instructional components. Following the definition of the learning environment, general decisions need to be made concerning instructional strategies or techniques. The strategies selected will vary in terms of the complexity of objectives and anticipated learning outcomes. The nature of the student body, their entering capabilities and the learning environment all impinge upon the design of instructional components.

5. Analysis of resources and constraints. The components are now reviewed in terms of available resources and constraints. What materials, personnel, space, and support systems are available? What is available outside the organization? What will need to be developed internally? What time constraints, if any, must be addressed?

6. Action to remove constraints. Educational systems have real limits in terms of resources. Cost effectiveness problems are particularly difficult. The design of instructional programs must be realistically projected within certain reasonable resources requirements.

7. Selection or development of materials. Once decisions have been made about what can be done relative to an ISD project, the developer(s) is ready to make decisions regarding instructional

materials. Instructional materials, media, and the use of alternative teaching and delivery systems will significantly advance or hinder the effectiveness of the program.

8. Designing student performance assessment. The careful and continuous analysis of student performance is a critical part of ISD. Improved student performance, including personal satisfaction, the growth of self, and personal dignity are measures of educational value. These results, not the process, are the focus of instructional development.

9. Field testing and formative evaluation. In practice it is necessary to try out new instructional designs in small or pilot situations. These trials lead to further revisions of the program. Studies conducted while the instructional system is in operation are formative evaluations.

10. Adjustments and revisions. The required number of try-outs prior to large scale implementation of instructional systems cannot be precisely stated. Constraints, such as budget, time schedule, and the results of early trials determine the amount of revision possible. However, an outstanding feature of the systems approach is that design objectives can be set in advance and revisions made until these objectives are met.

11. Summative evaluation of instructional systems. These evaluations deal with the effectiveness of the system as a whole. Such evaluations are done after the system has passed through the formative stage. Where an instructional system is implemented widely, summative evaluations need to be conducted over a range of settings and conditions.

12. Operational installation. Where formative and summative evaluations of the organization (efficiency) and impact (effectiveness) of the instructional system have been collected and interpreted, rational decisions can be made concerning widespread use. Another review must then be made regarding resources and the preparedness of the instructional staff and support personnel. Staff development and program diffusion techniques must be activated if an instructional system is to generate the commitment and competence required for implementation.

In order to complete the application of such an instructional design process, the developer will need to be competent in the areas of instructional analysis, design, and evaluation. A brief interpretation of these areas follows, including a list of areas of study related to each component. It is suggested that programs for the preparation of instructional system personnel would include the study and demonstration of competence in these areas.

a. Instructional Systems Analysis. The instructional systems analyst focuses on the state of the instructional system at any given time. This specialist analyzes discrepancies between the desired outcomes of the previously designed instructional system and develops plans for modifying the system so as to promote the congruence of the system in terms of the instructional/learning outcomes. Specialists in analysis need to demonstrate knowledge and competent performance in several areas: resource requirements of the instructional system, resource availability, analysis of system constraints, development of plans of action to remove or modify constraints, interpersonal communication, clinical conferencing, behavior modification techniques, and systematic procedures for data-gathering on the instructional process, ranging from individual classrooms to more complicated organizational units.

- Social Systems
- Learner
- Organizations
- Teaching Process
- Planning

b. Instructional Systems Design. The process of systems design entails the initial planning stage in which the basic properties and interrelated elements of the future instructional system are identified and defined. Specialists engaged in the process of instructional design need to demonstrate knowledge and competent performance in the areas of analysis and identification of needs, definition of goals and instructional objectives, design of the instructional strategies related to the needs and purposes of the system being designed, the selection and development of instructional materials, and the application of management principles related to the implementation of the system.

- Learning
- Intellectual Skills
- Instructional Design
- Delivery Systems
- Management

c. Instructional Systems Evaluation. The evaluation of instructional systems requires knowledge and competent performance in the general areas of educational research, statistics, and measurement as applied to research investigations and evaluations made regarding the efficiency and effectiveness of instructional systems.

- Research Design
- Statistics
- Measurement
- Evaluation
- Computers
- Mathematical Modeling

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